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Take Active Air Defense Measures (Battlefield Function 16) as Accomplished by a Heavy Brigade with a Subordinate Air Defense Artillery Battery. Volume 1: Function Analysis

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Armored Forces Research Unit

U.S. Army Research Institute for the Behavioral and Social Sciences

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14. ABSTRACT *(Maximum 200 words)*:

The purpose of the overall research program was to document the synchronization required by command and control tasks performed within the armored brigade, to include combat support and combat service support units. The immediate application of the documentation was to support developers of staff training in two related projects: Battle Staff Training System and Staff Group Trainer. The documentation was also intended to assist with the planning and execution of collective training.

The documentation approach was to apply function analysis (FA) techniques for battlefield functions (BFs) in the Command and Control battlefield operating system. Thirteen FAs were developed for the brigade headquarters and four supporting units: direct support field artillery battalion, engineer battalion, forward support battalion, and air defense artillery (ADA) battery. The FAs were revised through a formative evaluation process that included internal review and successive external reviews by combat training centers, proponent agencies, and a review council representing potential users of the FAs. The final products include the FAs, a user's guide, and assessment packages for the BFs. This report provides the FA and user's guide for the supporting ADA battery.

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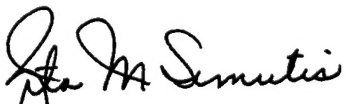
FOREWORD

One of the goals for the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to facilitate the development of training strategies that will serve the needs of the combined arms team today and into the 21st century. The indispensable foundations, the cornerstones, for meeting this goal are solid information and data bases. One such base is a set of comprehensive descriptions of how soldiers accomplish their missions. Many task descriptions have been developed where the focus is on activities within a particular Battlefield Operating System (BOS); these are often further narrowed to one BOS element within one echelon. What have been lacking are function analyses along with task descriptions that have a broader BOS perspective; one which focuses not only on intra-BOS relationships, but also the relationships of that BOS with other BOSs in accomplishing the overall mission. It is this latter perspective which is needed, for example, to define training requirements and strategies for combined arms operations.

The function analysis described in this report is a product of one of three efforts conducted under the ARI project, "Innovative Tools and Techniques for Brigade and Below Staff Training (ITTBBST)." The work in this part of ITTBBST is the fifth in a series of ARI projects directed at analyzing the vertical and horizontal synchronization required by combined arms operations. All of the projects have analyzed functions, previously labeled "critical combat functions (CCFs)" and now labeled "battlefield functions (BFs)." The previous projects analyzed: all BFs performed by a heavy battalion task force; a sample of seven BFs performed by an armored brigade; and the integration of fire support BFs as performed by an armored brigade and at echelons higher than brigade. The research in this project analyzed BFs in the Command and Control BOS. Separate coordinated analyses of these BFs were performed for the armored brigade headquarters and four types of supporting units, one of which is the Air Defense Artillery Battery.

The analyses developed in the project have been used in the development of staff training in related projects within the ITTBBST program. In addition, U.S. Army Training and Doctrine Command (TRADOC) representatives have identified a variety of applications by TRADOC training and other developers as well as potentials for collective training management.



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Technical Director

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This analysis has benefited from considerable dedicated effort on the part of many persons. The efforts of a few of these many persons are specifically and gratefully acknowledged here. An especially key person was MG (Ret) Lon E. Maggart, Commanding General of the U.S. Army Armor Center (USAARMC). Prior to and during the conduct of this effort, he contributed greatly to definition of training needs and concepts in support of Force XXI. He saw that battlefield functional analyses could provide a valuable foundation for Force XXI training development efforts; hence, MG (Ret) Maggart strongly backed these efforts.

COL G. Patrick Ritter and LTC Marvin K. Decker, acting in accordance and agreement with MG (Ret) Maggart's vision, vigorously pursued battlefield function analysis efforts and persevered in ensuring their application to Force XXI training developments. COL Ritter, director of Directorate of Training Development and Doctrine (DTDD) at USAARMC, and LTC Decker, Chief of DTDD's Force XXI Training Program office, ensured implementation of necessary actions, and the participation of military subject matter experts and potential users of function analysis products as needed to assure quality outcomes.

Among many participants in performing the analyses themselves, and validating their integrity and validity, were members of the Combined Arms and Tactics Department at the U.S. Army Air Defense Artillery School (USAADAS), DTDD at USAARMC, and Operations Group at the National Training Center. Final recommendations and approval of these analyses were provided by proponents and users constituting the Force XXI Review Council. Members of the Review Council included: COL G. Patrick Ritter and LTC Marvin K. Decker, USAARMC; LTC James R. Harrison, U.S. Army Armor School; LTC Larry Newman, USAADAS; LTC David M. Annen, U.S. Army Field Artillery School; COL Philip Federle, U.S. Army Engineer School; LTC Roger F. Murtie, National Training Center; LTC Gilbert Pearsall, Joint Readiness Training Center; COL Roger W. Jones, TRADOC Program Integration Office-Army Battle Command System; and COL Robert J. Fulcher, 29th Infantry Regiment.

The research for and preparation of this report benefited immeasurably from the assistance provided by members of the U.S. Army Research Institute. Specifically, the authors would like to acknowledge Ms. Dorothy Finley for serving as a peer reviewer for the product. She offered constructive comments that have improved both the content and style of the report. Also, special recognition is given to Ms. May Throne, a Consortium Research Fellow from the University of Louisville assigned to Fort Knox, and Ms. Lori Cracknell. Their never ending efforts to assist in the formal production of this report will not soon be forgotten.

TAKE ACTIVE AIR DEFENSE MEASURES (BATTLEFIELD FUNCTION 16) AS ACCOMPLISHED BY A HEAVY BRIGADE WITH A SUBORDINATE AIR DEFENSE ARTILLERY BATTERY VOLUME 1: FUNCTION ANALYSIS

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OVERVIEW

The results of the Army Research Institute's (ARI) examination of battlefield functions (BFs) relevant to a brigade combat team's combined arms operations are in two volumes. Volume 1, Function Analysis, identifies and describes various components necessary to accomplish the function. The components were selected based on their relevance to a unit trainer's interests. Volume 2, Assessment Package, is an assessment aid. It describes performance measures based on the purpose, outcomes, and tasks supporting the outcomes identified in the Function Analysis (Volume 1).

This overview provides the reader/user with necessary and relevant information concerning the analysis of BF 16, Take Active Air Defense Measures, as performed by an armored brigade with subordinate air defense artillery (ADA) battery. ADA battery participants and organizational structure identified in this analysis are based on modified table of organization and equipment (MTOE) 44175LFC24, dated 2 April 1993. Those from the brigade headquarters are based on TO&E 87042 L100, dated 5 October 1995. Special staff positions are based on FM 71-3, August 1995.

Although the focus of the analysis is on the brigade combat team's accomplishment of active air defense, the supporting air defense artillery battery's role is examined in detail. This function analysis (FA) of Take Active Air Defense Measures (BF 16) is a product of the process of developing training strategies for the brigade (Bde) and for the ADA battery supporting the brigade. It contains the three battle phases (Plan, Prepare, Execute) which compose the command and control (C2) battlefield operating system (BOS). The analysis reflects the tasks, participants, products, and processes required by the brigade and the ADA battery to achieve the outcomes necessary for providing air defense (AD) for an armored brigade.

A battlefield function is defined as processes or activities occurring over time that must be performed to accomplish a mission(s) or supporting critical tasks. It provides task integration, combined arms interaction, and inter-BOSs linkages.[1]

Synchronization of battlefield functions provides commanders at tactical echelons with a definable outcome that materially affects the battle. Without this synchronization, it is doubtful that a commander's concept and intent will be achieved.

The analysis has addressed emerging doctrine related to the assignment of a Bradley/ Avenger/Stinger battery, from a divisional ADA battalion, in direct support of a heavy brigade combat team. The actual composition of the ADA battery may vary depending upon the division TOE as well as on-going force modernization; specifically, for combat operations it will also vary upon the division commander's air defense priorities and mission, enemy, terrain, troops, and time available (METT-T). The analysis addresses specific responsibilities for AD and AD-relevant functions. It includes the tasks required of the ADA battery and its key personnel as well as AD-related tasks necessary for the Bde,

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[1] The term "Battlefield Function (BF)" was designated by the U.S. Army Training and Doctrine Command (TRADOC) in September 1996 to replace "Critical Combat Function (CCF)". At the same time, the term was redefined. TRADOC also renamed "task analysis" (TA) to "function analysis" (FA).

its leaders and staff personnel, and its subordinate elements. Several tasks describe responsibilities of the ADA battery commander who serves as the brigade commander's ADA officer (ADO) and principal advisor; also stated are the duties of the air defense artillery liaison officer (ADALO) who serves as a member of the brigade staff during battle planning and operations. The ADALO is vital to the brigade commander and staff, as he is always present as the AD representative and interacts with the brigade staff as the expert on AD employment. The ADALO ensures smooth and efficient employment of AD assets as well as the effective integration of combined arms in executing active AD. The work of the ADALO enhances synchronization of AD and further allows the battery commander to perform his responsibilities for commanding and fighting the ADA battery.

With the fielding of modern and more advanced AD weapon and sensor systems, ADA doctrine will improve the overall effectiveness of the AD BOS. Tasks described in the tasks list reflect, to the extent possible, the activities that are based on modernization and emerging doctrine.

An effort was made to identify specific task titles taken directly from the appropriate Army Training and Evaluation Program - Mission Training Plan (ARTEP-MTP). The wording of each task in this analysis is sometimes a direct quote from the MTP. Generally, the wording of the tasks is an integration of tasks and requirements derived from ARTEP-MTPs, applicable Field Manuals (FMs), and other related documents. Those tasks not taken from the ARTEP-MTPs are: a) derived titles that may apply only to a part of an ARTEP-MTP subtask or some other element of the ARTEP-MTP; b) multiple subtasks from several different, but related, tasks; c) tasks that are not directly stated in the ARTEP-MTP, but are implied by other tasks or requirements in an applicable FM or other related document; d) tasks derived from Center for Army Lessons Learned publications; e) tasks developed during coordination visits with TRADOC proponent schools, U.S. Army Forces Command (FORSCOM) units, and the Combat Training Centers; or, f) performance requirements considered necessary based on experience of the analyst. The author coordinated continuously with the ADA School to ensure that the doctrine reflected in this analysis is accurate and current. However, information reflected in the recently published FM 44-64 (Oct 96) and ARTEP 44-176-15 MTP (Jan 96) will likely require minor modification of this analysis. The currency of this analysis will also be affected by changes to unit capabilities such as the additional technology (e.g., information systems) now in different stages of fielding.

PURPOSE AND OUTCOMES

This component identifies what the BF is supposed to accomplish overall, which we term as the purpose. This component also identifies the endstates or bottom line results necessary to achieve the purpose, which we term outcomes. As a consequence, this component of the analysis defines the endstates that performance of the tasks will accomplish.

PURPOSE

To preserve the brigade's freedom of maneuver and protect critical brigade assets by nullifying or reducing the effectiveness of low-level hostile third dimensional threat through active air defense.

OUTCOMES

1. Complete, concise, feasible, suitable, acceptable, and tactically sound orders for air defense are issued by the brigade headquarters and the supporting ADA battery.

2. The brigade plan for air defense and the ADA battery's operation order (OPORD) and fragmentary orders (FRAGO) are received and understood by key participants.

3. Bde air defense assets that are prepared to conduct the Bde air defense mission in accordance with the Bde Cdr's concept and intent.

4. Bde assets attack and defeat enemy air without hindering or restricting friendly air activity.

FLOW CHARTS

This component provides a graphical/pictorial description of BF tasks as they are sequenced within the framework of tactical battle phases (e.g., planning, preparation, execution). The purposes of this component are: to describe the flow of tasks during each battle phase; to describe vertical task linkages (to higher and lower echelon units) and horizontal task linkages (to other BF tasks for the echelon being analyzed); and to depict information input and output which affect each task. Although the sequencing of tasks throughout each battle phase is intended to reflect the flow of tasks, tasks may be performed concurrently or may overlap with preceding or subsequent tasks.

Each echelon is described by the echelon on the left of the flow chart; a horizontal line depicts the flow of tasks by sequence, reading left to right. The horizontal line for the echelon being analyzed is thicker than all other echelon horizontal lines.

Tasks from the BF task list are applied to the echelon line in the sequence in which they occur. The tasks are depicted in a task box. Inside and to the upper left of each task box is placed the task number of the appropriate task as listed in the task list.

The linkages of tasks, both vertically and horizontally, are depicted with lines. Arrowheads are placed on lines to depict linkages or interaction with other tasks. The linkage or interaction between these tasks is detailed in the task list.

Figure 1 illustrates the battalion (Bn) or battalion task force (Bn TF) task contributing to or otherwise supporting the brigade (Bde) task.

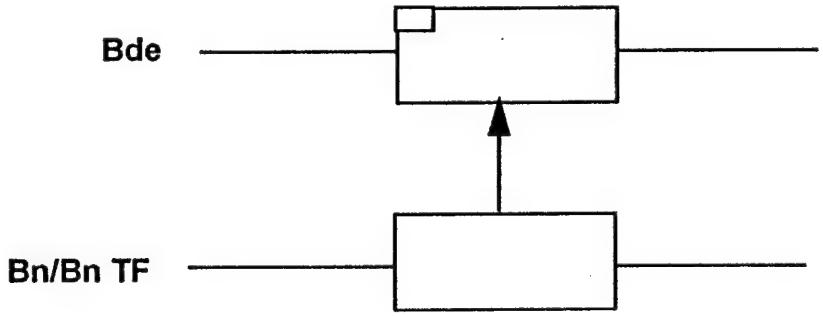


Figure 1. Depiction of a task contributing to the accomplishment of another task.

Lines with no arrowheads reflect a task and its subordinate (sub)tasks. Figure 2 illustrates this association.

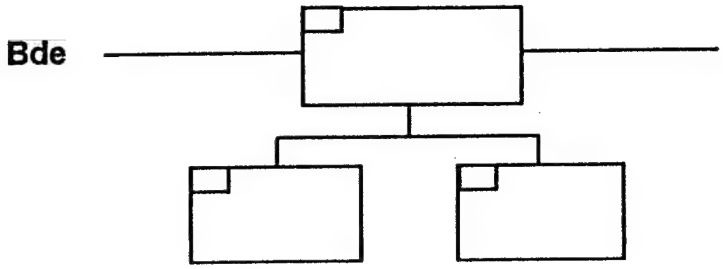


Figure 2. Depiction of the relationship between tasks and subtasks.

Inputs and/or outputs, as contained in the "Key Inputs and Outputs" component (section 5) of this BF function analysis (FA), are also reflected on the flow charts. The relevant input and/or output letter listed in the "Key Inputs and Outputs" component is listed in a box on the outside upper right of the task. Relevant information input for each task is depicted to demonstrate information which is required to perform the task; output information is that which is produced as a result of performing the task. Figure 3 illustrates how information input and output are depicted.

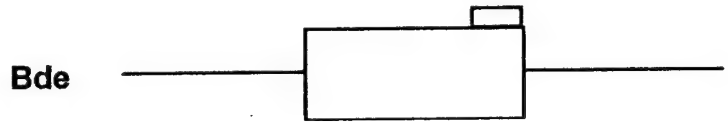
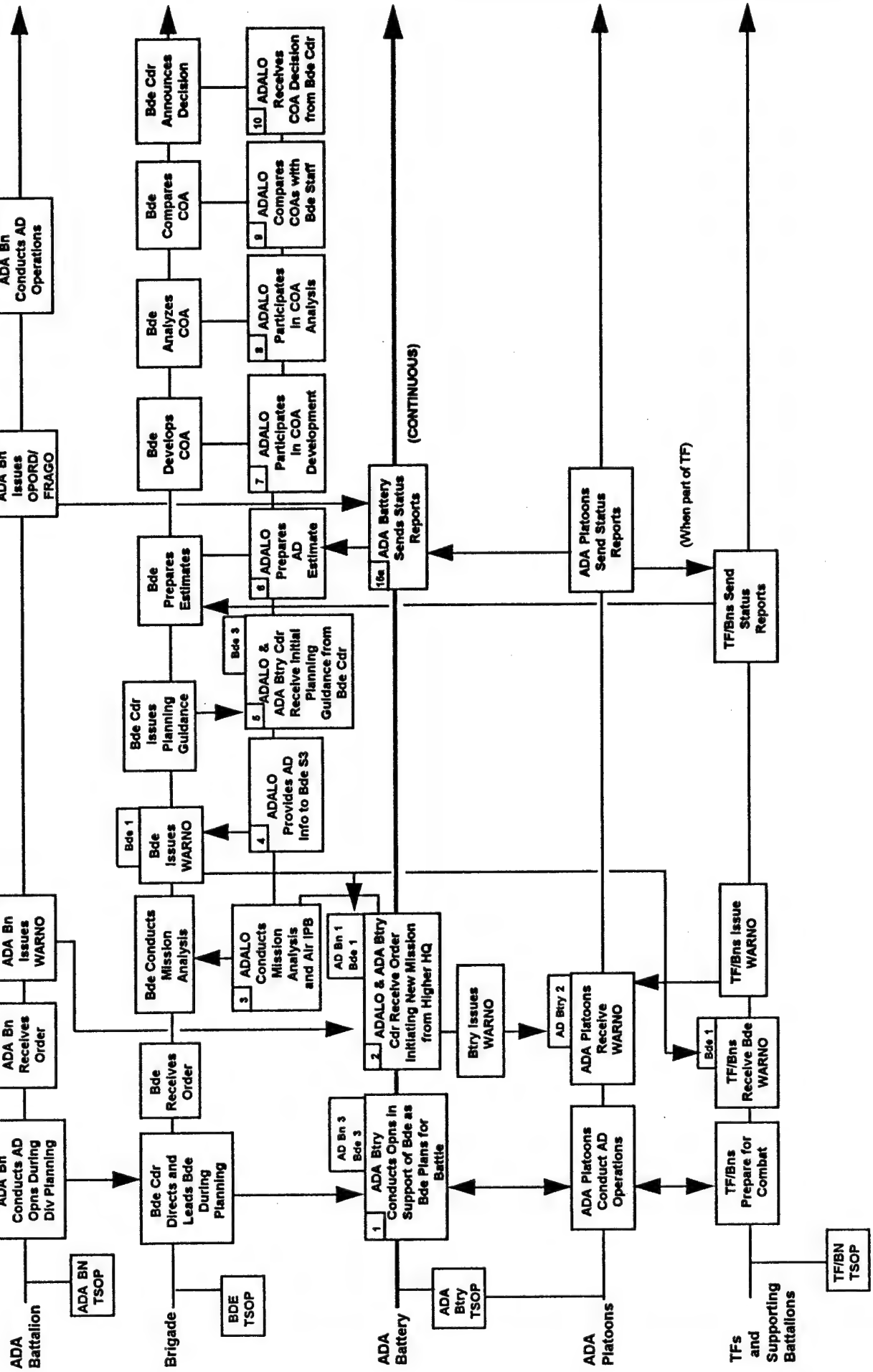
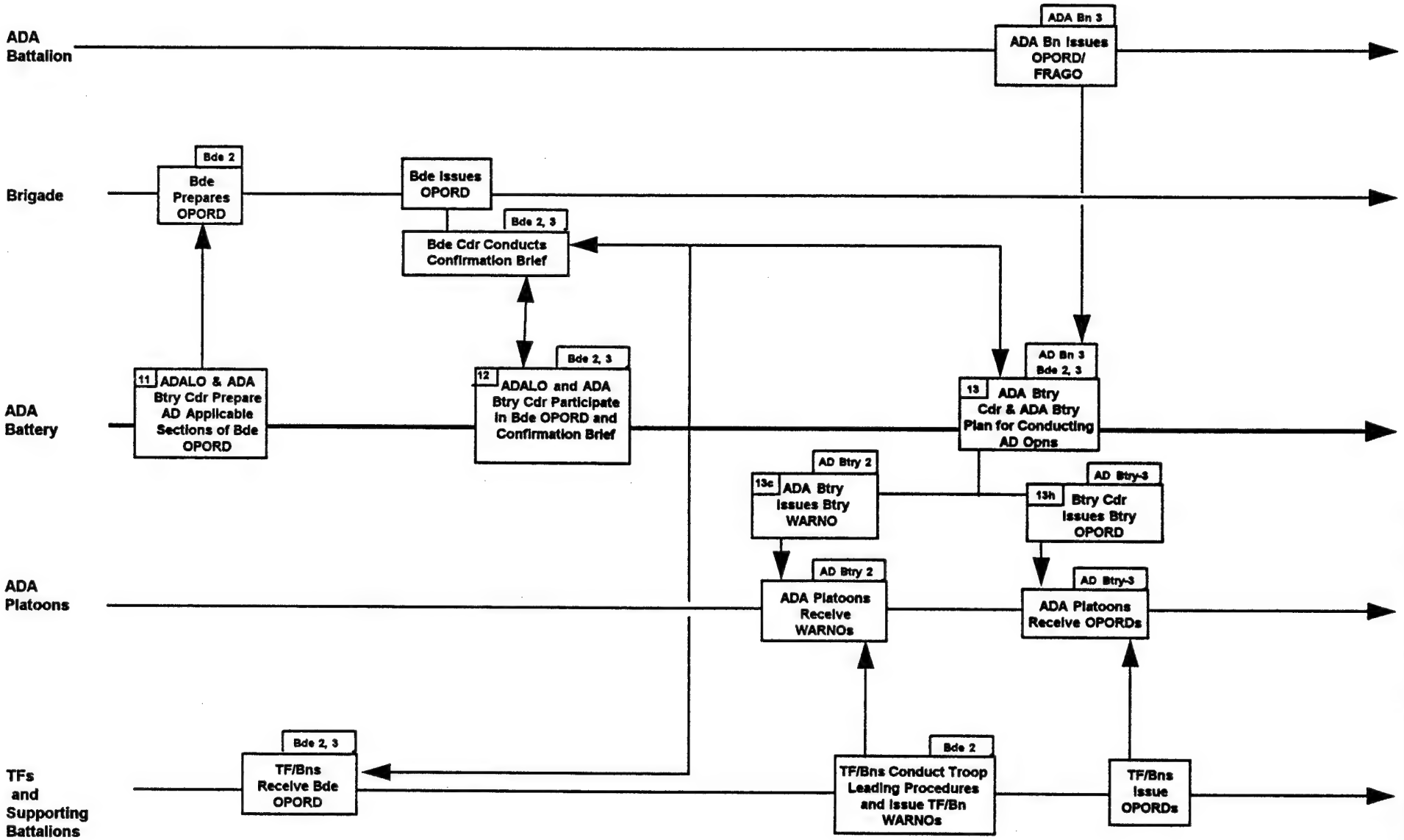


Figure 3. Depiction of placement of the box reflecting information input and output.

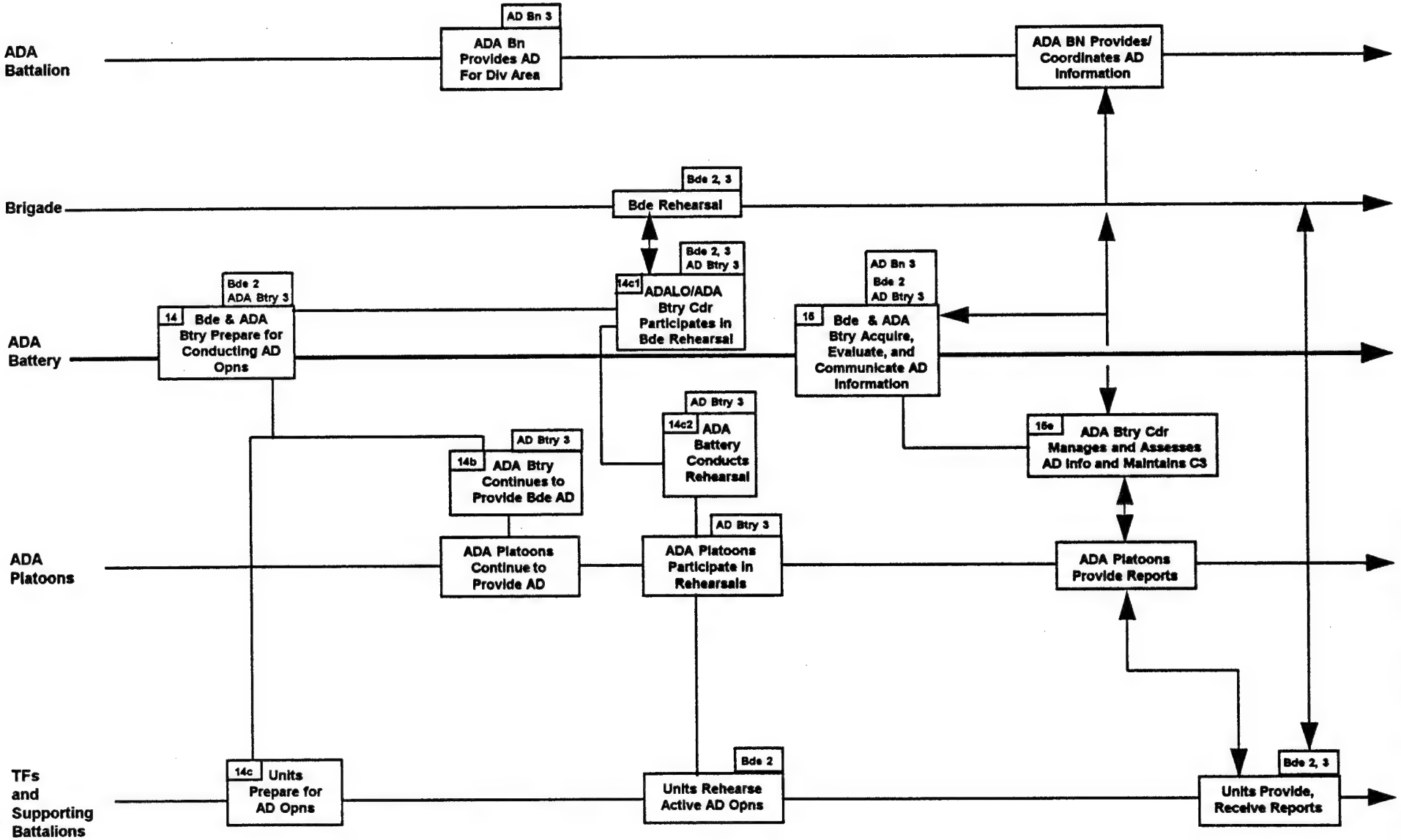
Task Flow Plan

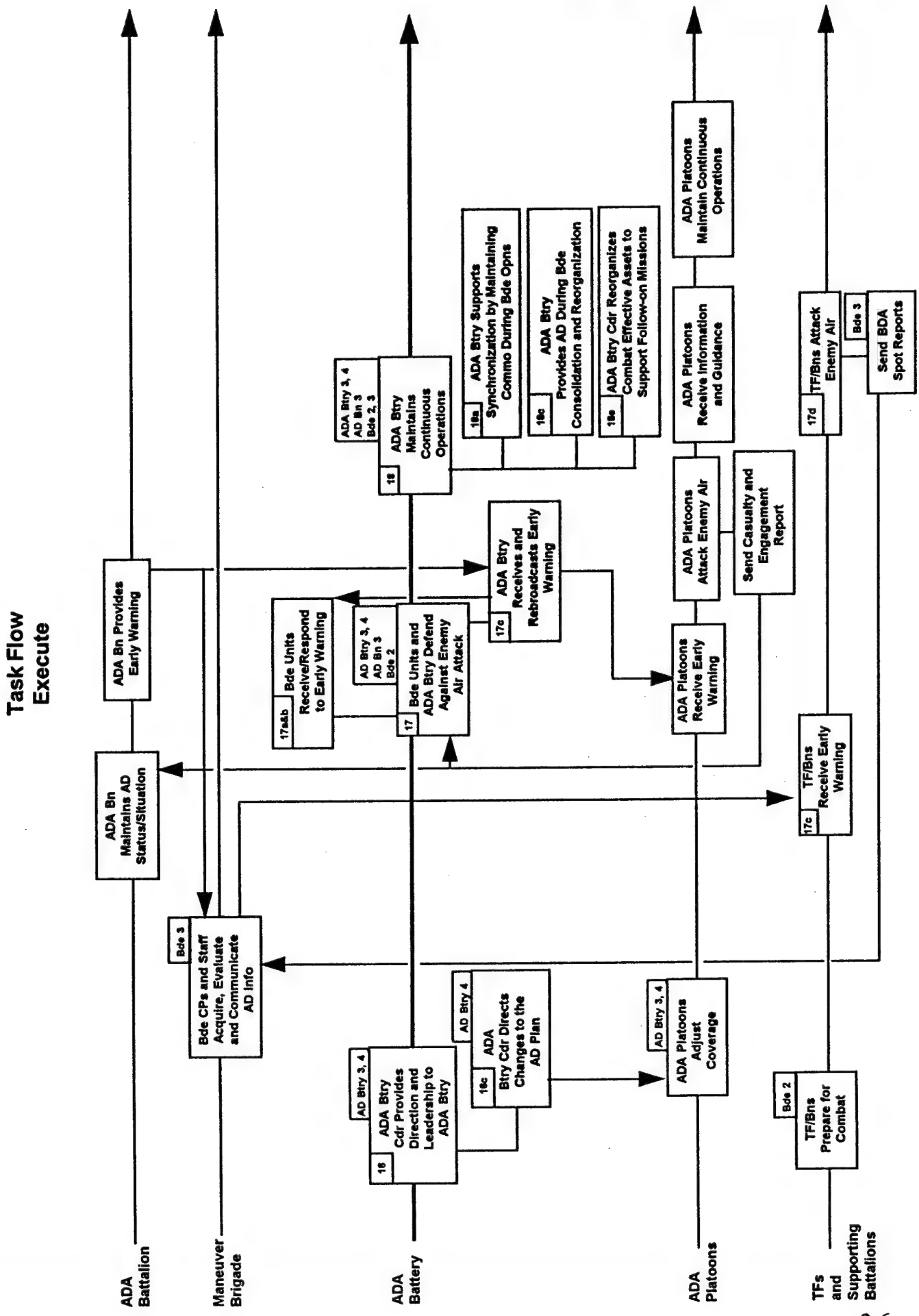


Task Flow
Plan (Continued)



Task Flow
Prepare




Task Flow
Execute
ADA Battalion
Maneuver Brigade
ADA Battery
ADA Platoons
TFs and Supporting Battalions
ADA Bn Provides Early Warning
ADA Bn Maintains AD Status/Situation
Bde 3
Bde CPs and Staff Acquire, Evaluate and Communicate AD Info
17a&b Bde Units Receive/Respond to Early Warning
AD Bty 3, 4 AD Bn 3 Bde 2
17 Bde Units and ADA Btry Defend Against Enemy Air Attack
ADA Btry Receives and Rebroadcasts Early Warning
17c
ADA Btry 3, 4 AD Bn 3 Bde 2, 3
18 ADA Btry Maintains Continuous Operations
18a ADA Btry Supports Synchronization by Maintaining Commo During Bde Opns
18c ADA Btry Provides AD During Bde Consolidation and Reorganization
18e ADA Btry Cdr Reorganizes Combat Effective Assets to Support Follow-on Missions
ADA Platoons Maintain Continuous Operations
ADA Platoons Receive Information and Guidance
ADA Platoons Attack Enemy Air
Send Casualty and Engagement Report
ADA Platoons Receive Early Warning
17d TF/Bns Attack Enemy Air
Bde 3
Send BDA Spot Reports
TF/Bns Receive Early Warning
17c
AD Btry 3, 4
18 ADA Btry Cdr Provides Direction and Leadership to ADA Btry
AD Btry 4
18c ADA Btry Cdr Directs Changes to the AD Plan
AD Btry 3, 4
ADA Platoons Adjust Coverage
Bde 2
TF/Bns Prepare for Combat

TASK LINKAGES

This component links the tasks performed as a part of this function with the tasks performed in other BFs or by other units. The purpose of this component is to allow the trainer or training developer to incorporate related tasks and participants into a training exercise for this BF. Tasks which link to this analysis have been extrapolated for BFs/type units for which FAs have not been accomplished. For tasks extracted from published BF FAs, the task number is provided.

PLANNING TASKS

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.**

LINKS TO OTHER BFs/UNITS

Division BF 18.
- The division establishes the division early warning net.

Brigade BF 2.
- The Bde S2 section collects intelligence information.

Brigade BF 3.
- The Bde S2 section processes intelligence information.

Brigade BF 4.
- The Bde S2 section disseminates intelligence information.

Brigade BF 18, Task 1.
- The Bde Cdr and staff direct and lead the Bde during planning for the battle.

Brigade BF 18, Task 1. b. 3) d).
- Convenes the A2C2 team as required.

Brigade BF 18 , Task 1. d. 4).
- The brigade defends against air attack.

Brigade BF 25.
- Bde headquarters (HHC) secures the Bde tactical operations center (TOC).
- Bde subordinate units execute operational security (OPSEC).

Engineer Battalion BF 18, Task 1. b.
- The engineer battalion commander directs ongoing engineer mobility, counter mobility, and survivability operations.

		Forward Support Battalion (FSB) BF 18, Task 1. i. - The FSB staff directs accomplishments of combat service support operations. Battalion BF 16. - The ADA Bn TOC provides AD relevant information, e.g., air defense warnings (ADW), air defense weapons control status (ADWCS).
2.	**The air defense artillery liaison officer (ADALO) and battery commander receive an order initiating a new mission from higher headquarters.**	Brigade BF 18, Task 2. - The Bde receives an order initiating a new mission from higher headquarters. Battalion BF 16. - The ADA Bn provides the ADA Btry a warning order (WARNO).
3.	**The ADALO conducts mission analysis with the brigade staff.**	Brigade BF 18, Task 2. g. 3) a). - The Bde S2 section initiates intelligence preparation of the battlefield. Brigade BF 18, Task 3. - The Bde Cdr and staff conduct mission analysis. Brigade BF 18, Task 3. b. 4) c). - The brigade S3 Air in conjunction with the brigade Army airspace command and control (A2C2) element conducts A2C2 mission analysis of the division order.
4.	**The ADALO provides air defense information to the brigade S3 as input for the brigade WARNO**	Brigade BF 18, Task 4. - The Bde executive officer (XO) directs the staff in the preparation and issuance of a brigade WARNO.
5.	**The ADALO and the ADA battery commander receive initial planning guidance from the brigade commander.**	Brigade BF 18, Task 5. - The Bde Cdr issues initial planning guidance. Brigade BF 18, Task 5. c. 4) e). - Concept of A2C2.

6.	**The ADALO prepares paragraphs 1 and 2 of the AD estimate.**	Brigade BF 4. - The Bde S2 section disseminates intelligence products. Brigade BF 18, Task 6. d. 2). - The brigade S2 section in conjunction with the brigade ADALO prepares the brigade intelligence estimate. Brigade BF 18, Task 6. - The brigade commander and staff prepare estimates. Brigade BF 18, Task 6. f. - The S3 Air in conjunction with the A2C2 element prepares the A2C2 estimate. Battalion BF 16. - The ADA Bn provides enemy air threat information.
7.	**The ADALO participates in the course of action development.**	Brigade BF 18, Task 7. - The Bde Cdr and staff develop course of actions (COA). Brigade BF 18, Task 7. i. 6). - Receives information from the brigade S3 about each maneuver course of action. Brigade BF 18, Task 7. i. 6) e). - Coordinates with brigade S2 to refine enemy threat capabilities. Brigade BF 18, Task 7. i. 6) d). - Coordinates with the brigade S4 to develop the concept of combat service support (CSS) for air defense units' fuel, maintenance, and missile resupply. Brigade BF 18, Task 7. i. 6) f). - Coordinates with the brigade S2 to review ground.

8.	**The ADALO participates in the brigade course of action analysis.**	Brigade BF 18. - The Bde Cdr and staff analyze COAs. Brigade BF 18, Task 8. e. 7) e). - Air defense decision points.
9.	**The ADALO compares COAs with the brigade staff.**	Brigade BF 18, Task 9. - The Bde staff compares COAs.
10.	**The ADALO receives the COA decision from the brigade commander.**	Brigade BF 18, Task 10. - The Bde Cdr announces the COA.
11.	**The ADALO and the ADA battery commander prepare the AD relevant sections of the brigade order.**	Brigade BF 16. - The ADA Bn provides AD relevant information; e.g., location, status, and mission of other/adjacent AD units. Brigade BF 18, Task 11. - The Bde staff prepares the operations order (OPORD).
12.	**The ADALO and ADA battery commander participates in the brigade orders brief.**	Brigade BF 18, Task 12. - The Bde Cdr and staff issue the OPORD.
13.	**The ADA battery commander plans for conducting AD operations.**	Brigade BF 8. - The ADA Btry provides and coordinates targets of interest with the Bde fire suppoert officer (FSO). Brigade BF 19, Task 4. - The Bde Cdr directs changes to the operation or plan. DS FA Bn BF 18, Task 4. - The ADA battery provides and coordinates targets with the brigade fire support officer (FSO). Battalion BF 16. - The ADA battalion commander and staff issues the OPORD for division AD.

PREPARATION TASKS

14. **The brigade and the ADA battery prepare for conducting AD operations.**

Division BF 29.
- Establish the controlled supply rate (CSR)/required supply rate (RSR) for Bde equipment.

Brigade BF 4.
- The Bde S2 disseminates intelligence products.

Brigade BF 19, Task 1.
- The Bde command posts and staff manage and maintain command, control, and communications.

Brigade BF 19, Task 2.
- The Bde command posts and staff support synchronization by acquiring, evaluating and communicating information and maintaining status.

Brigade BF 19, Task 2. a. 4).
- The brigade S2 and S2 section obtain intelligence information.

Brigade BF 19, Task 4.
- The Bde Cdr directs changes to the operation or plan.

Brigade BF 19, Task 5.
- The Bde Cdr directs and leads subordinate forces.

Brigade BF 24.
- Construct defensive positions.

Brigade BF 25.
- Bde units sustain OPSEC.

Brigade BF 30.
- Maintain the current battle roster.

Bn TF BF 16, Task 24.
- Refine the plan; issue the FRAGO.

Bn TF BF 16, Task 26.
- Conduct AD rehearsals.

Bn TF BF 16, Task 27.
- Conduct task force (TF) rehearsals.

Engineer Battalion BF 18.
- The Engr Bn provides survivability position construction support for the Bde and the ADA Btry.

FSB BF 18, Task 1. i.
- The FSB conducts logistics operations in support of the Bde and the ADA Btry.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.**

Brigade BF 2, Task 3. a.
- Collect spot reports (SPOTREP).

Brigade BF 3.
- The Bde S2 section processes information.

Brigade BF 4.
- The Bde S2 section disseminates intelligence products.

Brigade BF 19, Task 2.
- The Bde command posts (CP) and staff support synchronization by acquiring, collating, and communicating information and maintaining status.

Battalion BF 16.
- The ADA Bn processes and disseminates air defense information and reports to the Bde TOC and ADA Btry.

EXECUTION TASKS

16. **The ADA battery commander provides direction and leadership to the ADA battery.**

17. **The brigade and ADA battery defend against enemy air attacks.**

Brigade BF 20, Task 2.
- Bde CPs support synchronization by acquiring, evaluating, and communicating information.

Brigade BF 20, Task 4.
- The Bde Cdr directs changes to the operation or plan.

Battalion TF BF 16/17, Task 29.
- Enemy air attack warning received.

Battalion TF BF 16/17, Task 30.
- Air attack warning is sent out on the early warning and command nets.

Battalion TF BF 16/17, Task 32.
- TF engages enemy air.

18. **The air defense artillery battery maintains continuous operations.**

Division BF 29.
- Establish CSR/RSR.

Battalion BF 16/17, Task 33. b.
- Early warning is sustained.
- Personnel services support is provided for AD unique requirements.
- Maintenance support is provided for air defense peculiar weapon systems.
- TF and ADA assets engage air threat.

Battalion TF BF 16/17, Task 33. c.
- TF continues mission.

Brigade BF 20, Task 5.
- Bde CPs manage and maintain command, control, and communications.

Brigade BF 20, Task 6.
- The Bde consolidates and reorganizes.

Brigade BF 24.
- The engineer (Engr) Bn provides survivability support during consolidation.

Brigade BF 27.
- Supported TF establishes decontamination points and assists decontamination for units.

Brigade BF 28, Task 6.
- Supported TFs provide transportation for personnel and equipment as required.

Brigade BF 31.
- Supported TF provides maintenance support as required.

Brigade BF 33.
- Supported TF assists in the evacuation of battlefield casualties at established Bde locations.

- Supported TF assists in the treatment of battlefield casualties at established aid stations.

Engineer Battalion BF 20, Task 5.
- The Engr Bn reorganizes and supports Bde consolidation.

FSB BF 20.
- The FSB consolidates and reorganizes and/or assists in Bde elements consolidating, reorganizing, and regeneration.

KEY PARTICIPANTS BY TASK

This component identifies the training audience for training events for the related tasks. It is based on the appropriate echelon/type unit TO&E and includes special staff (as per appropriate doctrinal reference) critical for the task accomplishment. The purpose of this component is to help commanders and trainers to identify the training audience required for a training event.

PLANNING TASKS	PARTICIPANTS
1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.**	ADA Btry Cdr, ADA Btry XO, ADALO, ADA TOC non-commissioned officer (NCO), ADA platoon/section leaders, Bde HHC Cdr, Bde HHC first sergeant (1SG), Bde S3 operations sergeant.
2. **The air defense artillery liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.**	ADA Btry Cdr, Bde ADALO, ADA Btry XO.
3. **The air defense artillery liaison officer conducts mission analysis with the brigade staff.**	Bde ADALO, Bde S3, Bde S3 section, Bde S2, Bde S2 section, Bde Cdr, ADA Btry Cdr, ADA Bn TOC personnel.
4. **The air defense artillery liaison officer provides air defense information to the brigade S3 as input for the brigade warning order.**	Bde ADALO, Bde S3.
5. **The air defense artillery liaison officer and the air defense artillery battery commander receive initial planning guidance from the brigade commander.**	Bde ADALO/ADA Btry Cdr, Bde Cdr, Bde XO, Bde S3.
6. **The air defense artillery liaison officer prepares paragraphs 1 and 2 of the air defense estimate.**	Bde ADALO, Bde S2, Bde S3 Air, Bde S1, Bde S4, Bde FSO, Bde air liaison officer (ALO), Bde aviation liaison officer (AVLO).
7. **The air defense artillery liaison officer participates in the course of action development.**	Bde ADALO, Bde XO, Bde S3, Bde S4, Bde S2.

8.	**The air defense artillery liaison officer participates in the brigade course of action analysis.**	Bde ADALO, Bde XO, Bde S3, Bde S2, Bde ALO, Bde AVLO, Bde FSO, Bde S4.
9.	**The air defense artillery liaison officer compares courses of action with the brigade staff.**	Bde ADALO, Bde XO, Bde S3, Bde S2, Bde S4, Bde ALO, Bde AVLO.
10.	**The air defense artillery liaison officer receives the course of action decision from the brigade commander.**	Bde ADALO, Bde Cdr, ADA Btry Cdr, Bde XO, Bde S3.
11.	**The air defense artillery liaison officer and the air defense artillery battery commander prepare the air defense relevant sections of the brigade order.**	Bde ADALO, ADA Btry Cdr, Bde S2, Bde S3 Air, Bde ALO, Bde FSO, Bde AVLO.
12.	**The air defense artillery liaison officer/air defense artillery battery commander participates in the brigade orders brief.**	Bde ADALO, ADA Btry Cdr, Bde S3, Bde Cdr, TF Cdrs, FSB Cdr/support operations officer, Engr Bn Cdr, Bde FSO, Bde XO, Bde S1, Bde S2, Bde S4, Bde ALO, Bde AVLO.
13.	**The air defense artillery battery commander plans for conducting air defense operations.**	ADA Btry Cdr, ADA Btry XO, ADA Btry TOC personnel, ADA platoon/section leaders.
	PREPARATION TASKS	
14.	**The brigade and the air defense artillery battery prepare for conducting air defense operations.**	ADA Btry Cdr, ADA Btry TOC personnel, BDE ADALO, ADA Btry XO, ADA platoon/section leaders, Btry 1SG, Bde Cdr, TF Cdrs, Bde S3, Bde S2.
15.	**The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.**	Bde ADALO, Bde TOC and CP personnel, Bde S3, Bde S2 and S2 section, ADA Btry CP personnel, ADA Btry Cdr, ADA Btry XO, platoon leaders.
	EXECUTION TASKS	
16.	**The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.**	ADA Btry Cdr, Btry 1SG, ADA platoon leaders, and platoon sergeants, first line leaders.

17.	**The brigade and the air defense artillery battery defend against enemy air attacks.**	ADA TOC personnel, ADA Btry AD systems, Bde CP personnel, Bde combat team systems crews, Bde personnel with small arms.
18.	**The air defense artillery battery maintains continuous operations.**	ADA Btry Cdr, Btry XO, Btry 1SG, Btry supply sergeant, Btry maintenance chief, communication section NCO, Btry nuclear, biological, and chemical (NBC) NCO, Btry TOC personnel, platoon leaders, platoon sergeants, first line leaders, Bde S4, Bde HHC Cdr, Bde FSB personnel.

KEY INPUTS AND OUTPUTS

This component identifies critical input information required by participants to successfully accomplish the BF. Where information results from the performance of the BF tasks, BF information output will be identified. One BF's information output normally is provided as another BF's input. Critical input and output information is organized by the specific part of the doctrinal product or means used to communicate it. The source of critical information identified is specific only to the BF echelon and function being analyzed, and is not intended to reflect all the information the product may contain. The purpose of this component is to identify information required to drive a training exercise for this BF and to establish standards for measuring the performance of BF tasks resulting in information output.

KEY INPUTS

Bde - 1 BRIGADE WARNING ORDER (WARNO)

a. HEADING

1) References. (Maps, charts, and other relevant documents.)

2) Time zone used throughout the order.

3) Task organization.

b. SITUATION

1) Enemy forces. (Include significant changes of information.)

2) Friendly forces.

a) Division mission.

b) Division commander's intent.

c) Division concept of operation.

d) Missions of units to the immediate left and right.

e) Missions of other units with a significant bearing on the brigade.

3) Attachments and detachments.

c. MISSION

d. EXECUTION
Intent of the brigade commander (if available).

1) Concept of operation (when available).

2) Tasks to maneuver units (when available).

a) Tasks to units for execution.

b) Movement to be initiated (time).

c) Reconnaissance to be initiated (time).

d) Security to be in place (time).

3) Tasks to combat support units (when available).

4) Coordinating instructions.

a) Commander's critical information requirments (CCIR).

b) Risk guidance.

c) Deception guidance.

d) Timeline.

e) Guidance on orders and rehearsals.

f) Orders group meeting (attendees, location, and time) (when applicable).

g) Earliest time of movement and degree of notice.

e. SERVICE SUPPORT

1) Special equipment. (Identification of requirements and coordination instructions for transfer to using units.)

2) Transportation. (Requirements and coordination for pre-positioning of assets.)

f. COMMAND AND SIGNAL

1) Command. (Chain of command if different from the brigade tactical standing operating procedures [TSOP].)

2) Signal. (Identification of current signal operating instructions [SOI] and prepositioning of assets to support the operation.)

g. ACKNOWLEDGE. (Statement directing acknowledgment of receipt and understanding.)

Bde - 2 BRIGADE OPERATIONS ORDER (OPORD)

a. HEADING

1) References. (Maps, charts, DATUM, and other related documents needed to understand the order.)

2) Task organization.

b. SITUATION

1) Enemy forces.

a) Description of the enemy to battalion level.

b) Enemy course of action most probable.

c) Enemy most dangerous (to the brigade) course of action.

d) Assessment of terrorist activities directed against the brigade.

2) Friendly forces.

a) Corps mission.

b) Corps commander's intent.

c) Corps concept of operation.

d) Division mission.

e) Division commander's intent.

f) Division concept of operation.

g) Missions of units to the immediate left and right of the brigade.

h) Missions of other units with a significant bearing on the brigade's accomplishment of its mission.

3) Attachments and detachments.

c. MISSION

d. EXECUTION

Intent of the brigade commander.

1) Concept of operation (by phase if required).

a) Maneuver.

b) Fire Support.

(1) Main effort.

(2) Priority of fires.

c) Mobility and Survivability.

(1) Priority of support.

(2) Priority of mobility and survivability aspects as appropriate for general support (GS) units.

(3) Designation of authority to emplace obstacles.

d) Air Defense.

(1) Priority of air defense.

(2) AD weapons status.

(3) AD warning status.

(4) Combined arms for air defense (CAFAD) and small arms for air defense (SAFAD).

e) Command and Control Warfare (C2W).

2) Tasks to maneuver units.

a) Infantry.

b) Armor.

c) Cavalry.

d) Aviation.

3) Tasks to combat support units.

a) Fires.

(1) Air support.

(a) Close air support (CAS) sorties allocation.

(b) Tactical air reconnaissance sorties allocation.

(2) Chemical support. (Priorities of reconnaissance, decontamination, and smoke.)

(3) Field artillery support.

(a) General. (Priorities for counterfire or interdiction.)

(b) Organization for combat.

(4) Naval surface fires (NSF).

(5) Fire support coordinating instructions.

b) Mobility and Survivability.

(1) Engineer (and engineer overlay).

(2) NBC operations.

c) Air Defense.

(1) Organization for combat.

(2) Missions.

(3) Priorities for protection.

d) C2W.

(1) Functional and support roles of attached MI units.

(2) Deception.

(3) Electronic Warfare (EW).

(4) Unmanned aerial vehicle (UAV).

4) Coordinating instructions.

a) Time or condition when the brigade OPORD becomes effective.

b) CCIR.

(1) Priority intelligence requirements (PIR) (if not addressed in Annex B [Intelligence]).

(2) Essential elements of friendly information (EEFI) (if not addressed in Annex B [Intelligence]).

(3) Friendly forces information requirements (FFIR) (if not addressed in Annex B [Intelligence]).

c) Risk reduction control measures.

(1) Antiterrorist actions.

(2) Mission-oriented protective posture (MOPP).

(3) Operationsl exposure guide (OEG).

(4) Vehicle recognition signals.

(5) Fratricide prevention measures.

d) Rules of engagement (ROE).

e) Environmental considerations.

f) Any other coordinating instructions or additional instructions.

e. SERVICE SUPPORT

1) Support concept.

a) Synopsis of the FSB mission.

b) FSB headquarters and/or brigade support area locations.

c) The division support command (DISCOM) support priorities and where the brigade fits into those priorities.

d) The brigade commanders' priorities of support.

e) DISCOM units in addition to FSB supporting the brigade.

f) Significant and/or unusual CSS issues that might impact the overall brigade operation.

g) Any significant CSS risks.

h) Support requirements in the functional areas of manning, arming, fueling, fixing, and moving.

2) Material and services.

3) Medical evacuation (MEDEVAC) and hospitalization.

4) Personnel.

5) Civil-military cooperation.

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for brigade CP locations.

b) Chain of command if different from brigade standing operating procedures (SOP).

2) Signal.

a) Signal instructions.

b) Identification of current SOI.

c) Required brigade reports, formats, and times due (if different from TSOP).

g. ACKNOWLEDGE

h. ANNEXES

1) A-Task organization.

2) B-Intelligence.

a) SITUATION

(1) Enemy.

(a) Terrain.

(b) Weather.

(c) Enemy capabilities and/or activities.

1 Known and templated locations and activities of enemy units to battalion level.

2 Significant enemy maneuver and other functional area capabilities that impact on accomplishment of brigade functions.

3 Expected employment of enemy assets based on most probable enemy course of action.

(2) Friendly situation.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Concept of intelligence support to support the overall brigade operation.

(2) Tasks to subordinate units. (Detailed intelligence acquisition tasks, by unit.)

(3) Multidisciplined counterintelligence (CI). (Special operational instructions having CI aspects.)

(4) Coordinating instructions.

(a) Intelligence requirements and their priority.

(b) Intelligence acquisition.

1 Requests to division, corps, adjacent, and cooperating units (for intelligence information).

2 Requests for information from other units not organic or attached.

(c) Measures for handling personnel, documents, and material.

1 Enemy prisoners of war (EPW), deserters, repatriates, civilian inhabitants in the area, and other persons.

a Special handling and segregation instructions.

b Locations of EPW collection points.

2 Captured documents. (Special instructions for handling and processing from time of capture to receipt by specified brigade intelligence personnel [if different from TSOP]).

3 Captured material. (Specially designated items or categories of enemy material required for examination; specific instructions for their processing and disposition [if different from TSOP]).

(d) Documents or equipment required. (Description of the conditions under which subordinate units can obtain or request documents or equipment, such as aerial

photographs and maps [if different from TSOP]).

(e) Distribution of intelligence products.

1 Periods that routine reports and distribution cover.

2 Distribution of special intelligence products.

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

f) APPENDICES

(1) Appendix 1 - Intelligence Estimate.

Tab 1 Situation Overlay.

(2) Appendix 2 - Reconnaissance and Surveillance.

(3) Appendix 3 - Signals Intelligence.

(4) Appendix 4 - Multidisciplined counterintelligence (CI) Estimate.

3) C-Operation Overlay

4) D-Fire Support

a) SITUATION

(1) Enemy.

(a) Description of enemy fire support and AD assets up to division and down to battery/company.

(b) Enemy capabilities and/or activities.

1 Enemy rocket, cannon, and missile artillery.

2 Numbers of possible enemy close air support (CAS) and attack helicopter sorties by day.

3 Number, type, yield, and delivery means of enemy NBC weapons available to the committed force.

(2) Friendly situation.

(a) Division's concept of fires.

(b) Adjacent units' concepts of fires.

(c) Supporting air and naval forces.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Concept of fires to support the brigade commander's concept and priority of fire support.

(2) Air support.

(a) Brigade commander's intent for use of air power.

(b) Air interdiction (AI) operations.

(c) CAS operations.

(d) Electronic combat (EC) operations.

(e) Reconnaissance and surveillance (R&S) operations.

(f) Miscellaneous.

1 Air tasking order (ATO) effective time period.

2 Deadlines for submission of AI, CAS, R&S, and EC requests.

3 Mission request numbering system as it relates to the target numbering system.

4 Joint suppression of enemy air defense (JSEAD) taskings.

5 Essential Army airspace command and control (A^2C^2) measures.

(3) Field artillery support.

(a) Concept for use of cannon, rocket, and missile artillery in support of close, deep, and rear operations.

(b) Artillery organization for combat.

(c) Allocation of ammunition.

(d) Miscellaneous.

1 Changes to the targeting numbering system.

2 Use of performance rating form (PRF) codes.

3 Positioning restrictions.

(4) NSF.

(a) Concept for use of NSF support.

(b) NSF organization and relationships of ships to units (DS, GS).

(c) Miscellaneous.

1 Trajectory limitations or minimum safe distances.

2 Frequency allocations.

(5) Chemical support.

(6) Offensive EW support. (Concept for use of EW [jamming] in close and deep operations.)

(7) Target acquisition.

(a) Employment and allocation of FA target-acquisition systems and intelligence and electronic warfare (IEW) assets.

(b) Specific target-acquisition tasks, the observation matrix, fire support execution matrix, and radar deployment order.

(8) Coordinating instructions.

(a) Deep operations boundary.

(b) Targeting products.

1 Target-selection standards matrix.

2 High payoff target list (HPTL).

3 Attack-guidance matrix (AGM).

(c) Fire support coordinating measures (FSCMs).

(d) Time of execution of program of fires relative to H-Hour.

(e) ROE.

d) SERVICE SUPPORT

(1) Location of ammunition transfer point (ATP) and ammunition supply point (ASP).

(2) Controlled supply rate (CSR).

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1 - Air Support.

(2) Appendix 2 - Field Artillery.

(3) Appendix 3 - Naval Surface Fires.

5) E-Mobility and Survivability

a) SITUATION

(1) Enemy.

(a) Terrain.

(b) Weather.

(c) Enemy engineer capabilities and/or activities.

(2) Friendly situation.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Scheme of mobility and survivability operations to support the overall brigade operation, by phase and in priority.

(2) Tasks to subordinate units.

(3) Coordinating instructions.

(a) ROE for engineer units.

(b) Reference to supporting appendices.

d) SERVICE SUPPORT

(1) Command regulated classes of supply.

(2) Supply distribution plan.

(3) Transportation.

(4) Combat health support (CHS).

(5) Host nation (HN).

(a) Type, location, facilities, assets, and support available.

(b) Procedures for requesting and acquiring HN support.

(c) Limitations and restrictions on HN support.

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1 - Engineer.

(a) Scheme of engineer operations to support the overall brigade operation. The engineer main effort by mission and unit for each phase of the operation. Division level missions that impact the brigade.

1 Obstacles. (The details of the countermobility effort. Identification of obstacle belts to support brigade deep, close and rear operations. Identification, prioritization, and assignment of responsibilities for division and brigade directed and reserve targets. Execution criteria for reserve targets.)

2 Situational obstacles. (Concept for employing situational obstacles to support the brigade plan. Brigade planned and executed obstacles. Brigade planned and battalion/TF executed obstacles. Brigade resourced and battalion/TF planned and executed obstacles. Criteria for each type of obstacle with designation of HQs maintaining authority to use scatterable mines [SCATMINE]; restrictions on duration [by belt].)

(b) Tasks to subordinate units.

(c) Coordinating instructions.

1 Times or events at which obstacle belts become effective.

2 Brigade PIR to be considered by subordinate engineer staff or PIR that must be reported.

3 Mission reports required.

4 Explanation of engineer work lines.

(d) SERVICE SUPPORT

(e) COMMAND AND SIGNAL

(2) Appendix 2 - Environmental Considerations.

(a) Operational effect on environment versus military advantage.

(b) Coordinating instructions.

1 Certification of local water sources.

2 Solid waste and liquid waste management.

3 Medical waste.

4 Hazardous waste management.

5 Flora and fauna protection.

6 Archeological and historical preservation.

(d) SERVICE SUPPORT

(e) COMMAND AND SIGNAL. (Responsibility for initial environmental considerations guidance. Point of contact for processing requested waivers to environmental governing standards, and instructions for disposal of hazardous material and wastes.)

(3) Appendix 3 - Nuclear, Biological, and Chemical (NBC) Operations.

(a) Scheme of NBC defense operations to support the overall brigade operation.

(b) Tasks to subordinate units.

(c) Coordinating instructions.

1 Mission-oriented protective posture (MOPP) level guidance.

2 Automatic masking criteria.

3 Troop safety criteria.

4 Decontamination site locations.

5 Medical facilities and locations for treating chemical casualties.

6 Turn-in points for chemical and biological samples.

7 List of civilian and military facilities whose destruction could create militarily significant NBC hazards.

8 OEG guidance (if applicable).

9 Procedures for limiting electro-magnetic pulse (EMP) effects.

(d) SERVICE SUPPORT
(Procedures for handling contaminated casualties. Information on availability and locations of field expedient decontamination supplies, materials, and decontaminates.)

(e) COMMAND AND SIGNAL
(NBC warning and reporting system.)

(f) Tabs:
1 Tab 1- NBC Defense.

2 Tab 2 - Smoke operations.

6) F-Air Defense

a) SITUATION

(1) Enemy.

(a) Terrain. (Most likely route of enemy ingress and egress.)

(b) Weather.

(c) Enemy air capabilities and/or activities.

1 Air threat data. (Air-capable enemy organizations including platforms by number and type. Enemy aircraft all weather capabilities; limitations.)

2 Additional air threat information. (Air threat information not covered in the intelligence annex. Specific air threat considerations: sortie rate, subordination of air elements to ground units, ordnance peculiarities, target preferences, tactics, and recent significant activities.)

3 Patterns of use of air avenues of approach.

(2) Friendly situation. (Description of how the air defense plan integrates with division plans.)

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Scheme of ADA support to the overall brigade operation. (Includes the brigade commander's intent, objectives, and priorities.)

(2) Tasks to subordinate units. (Command and support relationships and priority of protection.)

(3) Coordinating instructions.

(a) Air defense warning (ADW) and ADW authority.

(b) Specific orders and requests (SOR) plan.

(c) Weapons control status (WCS) and WCS authority.

(d) Hostile criteria.

(e) ROE.

(f) Passive air defense.

(g) Combined arms for air defense.

(h) Early warning.

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL
(Identification, friend, or foe [IFF] code edition and book number.)

7) G-Command and Control Warfare (C^2W)

a) SITUATION

b) MISSION

c) EXECUTION

(1) Scheme of support for C^2W to the overall brigade operation.

(a) Military deception.

(b) EW.

(c) Operation security (OPSEC).

(2) C^2W tasks. (Exercise of coordinating authority for C^2W operations. Division commander's C^2W objectives and guidelines for accomplishment. Joint restricted list [JRFL] to support operations.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1- Electronic Warfare.

(2) Appendix 2 - Operations Security.

(3) Appendix 3 - Deception.

8) H-Signal Operations (SO).

a) SITUATION

(1) Enemy.

(a) Terrain. (All critical aspects that will impact on employment of C^2 communications systems.)

(b) Enemy capabilities and/or activities. (Significant enemy EW capabilities that impact C^2 systems.)

(2) Friendly situation. (Primary communications gateways providing connectivity to division, battalion/TFs, and adjacent units. Critical communications measures required to counter expected enemy EW capabilities and protect C^2 systems. External communication assets that will augment the brigade's signal support.)

b) MISSION

c) EXECUTION

(1) Concept of signal support to support the overall brigade operation. (Primary and back-up systems supporting critical C^2 networks. Plan for extending C^2 systems through each phase of the brigade operation. Critical links between tactical and strategic

communications systems [if applicable]. Signal support priorities.)

(2) Tasks to subordinate units. (Tasks to specific maneuver and signal support units not contained in the five paragraphs of the brigade OPORD. Detailed Army battle command system [ABCS] control procedures.)

(3) Coordinating instructions. (Key times or events critical to information system and network control procedures.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL
(C^2 Communications Planning and Systems Control [SYSCON] hierarchy for common user network. Local area network [LAN] control procedures for network administration and/or management.)

9) I-Provost Marshal (PM).

a) SITUATION

b) MISSION

c) EXECUTION

(1) Scheme of provost marshal operations to support the overall brigade operation.

(a) Maneuver and mobility support. (Battlefield circulation control [BCC] plan. Route R&S. Main supply route [MSR] traffic control. Straggler control. Refugee control. Intelligence collecting and reporting.)

(b) Area security. (Rear area protection plan, to include base defense. Security of critical assets. Base response force [Levels I, II, III]. Counterincursion. Air ground defense. Terrorism counteraction. Area damage control [ADC]. NBC detection and reporting.)

(c) Internment and resettlement operations.

(d) EPW holding areas. EPW operations.

(e) Law and order operations. (Maintenance of law and order in rear area forward to maneuver units' rear boundaries.)

(2) Tasks to subordinate units.

(3) Coordinating instructions. (Refer to Annex K [Rear Operations]. Coordination/cooperation among adjacent and other units. Civilian HN agencies which are required to complete the mission. Actions pertaining to rear area force protection that expand or differ from the brigade TSOP.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

10) J-Civil-Military Operations (CMO).

a) Scheme of operation for civil-military support to the overall brigade operation.

b) Tasks to subordinate units.

c) Coordinating instructions.

d) Signal. (Reporting functions for units and CMO activities. Special operations forces [SOF] [if appropriate] specific communications procedures to support CMO.)

11) K-Rear Operations.

a) SITUATION

b) MISSION

c) EXECUTION

(1) Scheme of rear area operations to support the overall brigade operation. Support for the brigade deep, and close operations by executing rear operations.

(a) Terrain management.

(b) Security. (Tactical combat force [TCF], response force, and reaction force. Counterreconnaisance plan. CI tasks to assist in threat reduction, location, and identification. Plan for integrating HN, multinational, or joint forces support.)

(c) Sustainment. (Monitoring of sustainment operations within the brigade. Positioning of support assets and critical CSS facilities and movements that require priority protection. Plan for establishment of forward supply points.)

(d) Movements. (Monitoring of administrative and tactical movements in the rear area. Identification of critical choke points that require sustained engineer support. Plan for routing of sustainment on MSRs to ensure no interference with movement of tactical units. Plan for tracking of all units moving through the rear area.)

(2) Tasks to subordinate units.

(a) Tactical combat force (TCF).

(b) Response force.

(c) Military police. (Establishment of traffic control points.)

(d) Base/base clusters. Reaction force. (Establishment of listening posts [LP] and observation posts [OP]. Patrols.)

(3) Coordinating instructions. (Establishment of operations centers. Reaction forces. Liaison with the rear CP. Terrain management, coordination. Base defense plans.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

(Location of rear operations commander. Chain of command for the rear CP. Base and base cluster commanders and chain of command. Deconfliction of chain of command with chain of support. Alternate rear CP location.)

12) L-Service Support.

a) SITUATION (see base OPORD)

b) MISSION (see base OPORD)

c) EXECUTION

(1) Scheme of service support operations to support the overall brigade operation.

(2) Tasks to subordinate units.

(4) Coordinating instructions.

d) SERVICE SUPPORT

(1) Material and services.

(a) Supply. (Information by class of supply. Supply cycle [as appropriate], plan, and procedures by class of supply.)

(b) Transportation. (Land, sea, and air [as applicable]. Facility locations, traffic control, regulation measures, MSRs and available supply rates [ASR], transportation critical shortages, and essential data not provided elsewhere.)

1 Road movement tables.

2 Traffic circulation.

(c) Services. (Construction. Clothing exchange and bath [CEB] and laundry. Mortuary affairs. Identification of services available; designation and location of units providing services.)

(d) Labor.

(e) Maintenance. (Aircraft, ground vehicles and other equipment and watercraft maintenance. Priority of maintenance, location of facilities and collecting points, repair time limits at each level of maintenance, and evacuation procedures.)

(2) MEDEVAC and hospitalization. (Evacuation. Hospitalization. Plan for collection, medical treatment, MEDEVAC policy, and hospitalization of sick, injured, or wounded US and joint forces soldiers, EPW, and civilians [as appropriate]. Requirements for CHS logistics, combat stress management, preventive medicine, dental services, and veterinary services.)

(3) Personnel. (Unit strength maintenance. Morale. Plans for unit strength maintenance, personnel management, morale development and maintenance, discipline, law and order, headquarters management, and religious support.)

(4) Civil-military cooperation. (if not addressed in Annex J, [Civil-Military Operations]).

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1- Service Support Matrix.

(2) Appendix 2 - Service Support Overlay.

(3) Appendix 3 - Traffic Circulation and Control.

Tab 1 Traffic Circulation (Overlay).

Tab 2 Road Movement Table.

(4) Appendix 4 - Personnel.

(5) Appendix 5 - Legal.

Tab 1 ROE

(6) Appendix 6 - Religious Support.

13) M-Army Airspace Command and Control (A^2C^2)

a) SITUATION

(1) Enemy Capability and activity. (Known and templated enemy ADA locations and enemy air corridors. Significant enemy maneuver capabilities that affect A^2C^2 operations such as radio combat capabilities.)

(2) Friendly situation. (Additional airspace users including Air Force, Navy, Marine, allies, coalition forces. ADA, FA, and UAV that affect the scheme of maneuver.)

b) MISSION

c) EXECUTION

(1) Concept of A^2C^2 support to the overall brigade operation.

(2) Tasks to subordinate units.

(3) Coordinating instructions.

(a) All ADA warnings, WCS, and ROE.

(b) Rules for in-flight procedures if different from the aviation procedures guide.

(c) Description of liaison procedures.

(d) Hostile and friendly aircraft in the brigade area of interest.

(e) Routes and corridors. (Minimum risk routes, low level transit route [LLTR], standard use routes, UAV operating areas, restricted operations zone [ROZ], air forces' routes, coordination requirements).

(f) Fire support coordination measures that affect airspace users.

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

i. DISTRIBUTION

Bde - 3 **GUIDANCE AND INFORMATION FROM THE BRIGADE COMMANDER AND STAFF**

a. Oral orders and guidance from the brigade commander, XO, or S3.

b. Operations reports.

c. Intelligence reports.

d. Logistics reports.

e. Personnel reports.

f. As required reports, e.g.:

1) Minefield report.

2) Patrol report.

3) EPW or captured material report.

4) Route reconnaissance report.

5) Severe weather warning report.

g. NBC reports.

AD Bn - 1 **ADA BATTALION WARNING ORDER (WARNO)**

a. HEADING

1) References: (Maps, charts, and other relevant documents).

2) Time zone used throughout the order.

3) Task organization.

b. SITUATION

1) Enemy forces. (Available third dimension information).

2) Friendly forces.

a) Division mission.

b) Division commander's intent.

c) Division concept of operation.

d) Missions of units to the immediate left and right.

e) Missions of other units with a significant bearing on the battalion.

3) Attachments and detachments.

c. MISSION of the battalion

d. EXECUTION

Intent of the battalion commander (if available).

1) Concept of operation (when available).

2) Tasks to ADA batteries (when available).

a) Tasks to units for execution.

b) Movement to be initiated (time).

c) Reconnaissance to be initiated (time).

d) Security to be in place (time).

3) Tasks to combat support elements (when available).

4) Coordinating instructions.

a) CCIR.

b) Risk guidance.

c) Deception guidance (if applicable).

d) Timeline.

e) Guidance on orders and rehearsals.

f) Orders group meeting (attendees, location, and time) (when applicable).

g) Earliest time of movement and degree of notice.

h) ROE to include hostile criteria, ADWs/local air defense warnings (LADWs)/WCS.

e. SERVICE SUPPORT

1) Special equipment. (Identification of requirements; information required to coordinate transfer to receiving units.)

2) Transportation. (Requirements, coordination instructions for pre-positioning of supplies, other.)

f. COMMAND AND SIGNAL

1) Command. Chain of command (if different from battalion TSOP.)

2) Signal. (Identification of current SOI and prepositioning of communications assets to support the operation.)

g. ACKNOWLEDGE (Statement directing acknowledgment of receipt and understanding.)

AD Bn - 2 (Not Used)

AD Bn - 3 ADA BATTALION FRAGMENTARY ORDER (FRAGO)

a. HEADING

b. SITUATION

1) Enemy forces.

a) Description of the enemy third dimension threat to battery level.

b) Enemy air threat probable course of action.

c) Enemy air threat most dangerous to the division's course of action.

d) Description of the enemy ground threat most dangerous to the battalion.

2) Friendly forces.

a) Corps mission.

b) Corps commander's intent.

c) Corps concept of operation.

d) Division mission.

e) Division commander's intent.

f) Division concept of operation.

g) Missions of units to the immediate left and right of the battalion.

h) Missions of other units with a significant bearing on the battalion.

3) Attachments and detachments.

c. MISSION

d. EXECUTION

Intent of the battalion commander.

1) Concept of operation.

a) Priorities of air defense.

b) Scheme of maneuver.

c) Mobility and Survivability.

(1) Priority of support.

(2) Priority of mobility and survivability aspects as appropriate for GS units.

d) A2C2 guidance.

2) Tasks to batteries.

3) Tasks to combat support elements.

4) Coordinating instructions.

a) Time or condition when the battalion FRAGO becomes effective.

b) CCIR (Changes from existing battalion order).

(1) PIR.

(2) EEFI.

(3) FFIR.

c) Risk reduction control measures that have changed.

d) ROE changes to include ADWs and air defense weapons control status (ADWCS).

e) Environmental considerations changes.

f) Any other coordinating instructions that changed from or are in addition to the existing battalion order.

e. SERVICE SUPPORT

1) Support concept.

a) Synopsis of the headquarters and headquarters battery (HHB) . mission.

b) Battalion Administration and Logistics Operations Center (ALOC).

c) The DISCOM support priorities and where the ADA battalion fits into those priorities.

d) The battalion commander's priorities of support.

e) Units in the DISCOM supporting the battalion.

f) Significant and/or unusual CSS issues that might impact the overall battalion operation.

g) Any significant CSS risks.

h) Support requirements in the functional areas of manning, arming, fueling, fixing, and moving.

2) Material and services.

3) MEDEVAC and hospitalization.

4) Personnel.

5) Civil-military cooperation.

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for battalion CP locations.

b) Chain of command if different from battalion SOP.

2) Signal.

a) Signal instructions.

b) Identify current SOI.

c) Required battalion reports, formats, and times due.

g. ACKNOWLEDGE

h. ANNEXES

i. DISTRIBUTION

KEY OUTPUTS

AD Btry - 1 Not used.

AD Btry - 2 ADA BATTERY WARNING ORDER (WARNO)

a. HEADING

1) References. (Maps, charts, and other relevant documents.)

2) Time zone used throughout the order.

3) Task organization.

b. SITUATION

1) Enemy forces. (Significant changes of third dimension information.)

2) Friendly forces.

a) Brigade mission.

b) Brigade commander's intent.

c) Brigade concept of operation.

d) Missions of units to the immediate left and right to include other air defense units.

e) Mission of ADA battalion.

3) Attachments and detachments.

c. MISSION of the ADA battery

d. EXECUTION

Intent of the battery commander (when available)

1) Concept of operation (when available).

2) Tasks to ADA platoons (when available).

a) Tasks to units for execution.

b) Movement to be initiated (time).

c) Reconnaissance to be initiated (time).

d) Security to be in place (time).

3) Tasks to support sections (when available).

4) Coordinating instructions.

a) CCIR.

b) Risk guidance.

c) Deception guidance (if applicable).

d) ROE to include Hostile Criteria, ADW/LADW/WCS.

e) Timeline.

f) CAFAD and SAFAD.

g) Guidance on orders and rehearsals.

h) Orders group meeting (attendees, location, and time) (when applicable).

i) Earliest time of movement and amount of notice.

e. SERVICE SUPPORT

1) Special equipment. (Requirements; coordination instructions for transfer to receiving units.)

2) Transportation. (Requirements; coordination instructions for pre-positioning of supplies, other.)

f. COMMAND AND SIGNAL

1) Command. Chain of command (if different from battery TSOP).

2) Signal. (Current SOI, positioning of communications assets to support operations.)

g. ACKNOWLEDGE. (Statement directing acknowledgment of receipt and understanding.)

AD Btry - 3 ADA BATTERY OPERATIONS ORDER (OPORD)

a. HEADING

1) References. (Maps, charts, DATUM, and other related documents needed to understand the order.)

2) Task organization.

b. SITUATION

1) Enemy forces.

a) Description of the third dimension threat to battery.

(Type aircraft and helicopters, numbers, capabilities)

b) Enemy air threat most probable course of action.

c) Enemy air threat most dangerous to the supported brigade.

d) Enemy ground threat most dangerous to the battery.

2) Friendly forces.

a) Division mission.

b) Division commander's intent.

c) Division concept of operation.

d) Brigade mission.

e) Brigade commander's intent.

f) Brigade concept of operation.

g) ADA battalion mission.

h) ADA commander's intent.

i) ADA battalion concept of operation.

j) Missions of units to the immediate left and right of the battery.

k) Missions of other air defense units with a significant bearing on the battery.

l) CAFAD and SAFAD.

3) Attachments and detachments.

c. MISSION

d. EXECUTION

Intent of the battery commander.

1) Concept of operation (by phase if required).

a) Battery commander's intent to include air defense priorities.

b) Movement.

c) Mobility and Survivability.

(1) Support available.

(2) Priority of mobility and survivability support.

2) Tasks to platoons.

3) Tasks to support elements.

4) A2C2 guidance and instructions.

5) Coordinating instructions.

a) Time or condition when the battery OPORD becomes effective.

b) CCIR.

(1) PIR.

(2) EEFI.

(3) FFIR.

c) Risk reduction control measures.

(1) Antiterrorist actions.

(2) Mission-oriented protective posture (MOPP).

(3) OEG.

(4) Vehicle recognition signals.

(5) Fratricide prevention measures.

d) ROE. (Hostile criteria, ADW/LAWD/WCS).

e) Environmental considerations.

f) Any other coordinating instructions or additional instructions.

e. SERVICE SUPPORT

1) Support concept.

a) Synopsis of support to the battery.

b) FSB headquarters and/or brigade support area locations.

c) The brigade's support priorities and where the battery fits into those priorities.

d) The battery commander's priorities for support.

e) Units in the brigade supporting the battery.

f) Significant and/or unusual CSS issues that might impact overall battery operations.

g) Any significant CSS risks.

h) Support requirements in the functional areas of manning, arming, fueling, fixing, and moving.

2) Material and services.

3) MEDEVAC and hospitalization.

4) Personnel.

5) Civil-military cooperation.

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for battery CP locations.

b) Chain of command if different from battery SOP.

2) Signal.

a) Signal instructions.

b) Current SOI.

c) Required battery reports, formats, and times due (if different from TSOP).

3) ADW/LADW/ADWCS

g. ACKNOWLEDGE

h. ANNEXES

1) A-Task organization

2) B-Third dimension intellegence preparation of the battlefield (IPB) (Provided by ADA battalion)

3) C-Decision support matrix (DSM)

AD Btry - 4 ADA BATTERY FRAGMENTARY ORDER (FRAGO)

a. HEADING

b. SITUATION

1) Enemy forces.

a) Description of the enemy third dimension threat to battery level. (Identification/type of air threat, location, strength, air avenues of approach).

b) Enemy air threat most probable course of action.

c) Enemy air threat most dangerous to the brigade course of action.

d) Enemy ground threat most dangerous to the battery.

2) Friendly forces.

a) Division mission.

b) Division commanders' intent.

c) Division concept of operation.

d) Brigade mission.

e) Brigade commander's intent.

f) Brigade concept of operation.

g) ADA battalion mission.

h) ADA battalion commander's intent.

i) ADA battalion concept of operation.

j) Missions of ADA units to the immediate left and right of the battery.

k) Missions of other air defense units with a significant bearing on the battery.

3) Attachments and detachments.

c. MISSION

d. EXECUTION

Intent of the battery commander.

1) Concept of operation.

a) Priorities of air defense.

b) Scheme of maneuver.

c) Mobility and Survivability.

(1) Support available.

(2) Priority of mobility and survivability aspects as appropriate for GS units.

d) A2C2 guidance.

2) Tasks to platoons.

3) Tasks to combat support elements.

4) Coordinating instructions.

a) Time or condition when the battery FRAGO becomes effective.

b) CCIR (Changes from existing battery order.).

(1) PIR.

(2) EEFI.

(3) FFIR.

c) Risk reduction control measures that have changed.

d) ROE changes to include hostile criteria, ADWs/LADW and ADWCS.

e) CAFAD and SAFAD.

f) Environmental considerations changes.

g) Any other coordinating instructions that changed from the existing battery order or additional instructions.

e. SERVICE SUPPORT

1) Support concept.

a) Synopsis of the battery trains mission.

b) ADA battalion ALOC.

c) The brigade support priorities and where the battery fits into those priorities.

d) The battery commander's priorities of support.

e) Units in the brigade supporting the battery.

f) Significant and/or unusual CSS issues that might impact the overall battery operation.

g) Any significant CSS risks.

h) Support requirements in the functional areas of manning, arming, fueling, fixing, and moving.

2) Material and services.

3) MEDEVAC and hospitalization.

4) Personnel.

5) Civil-military cooperation.

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for battery CP locations.

b) Chain of command if different from battery TSOP.

2) Signal.

a) Signal instructions.

b) Identify current SOI.

c) Required battery reports, formats, and times due (if different from TSOP).

g. ACKNOWLEDGE

h. ANNEXES

i. DISTRIBUTION

TASK LIST SUMMARY

This component provides a summary of the first level of tasks on the task list.

PLANNING PHASE

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.**

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.**

3. **The air defense liaison officer conducts mission analysis with the brigade staff.**

4. **The air defense liaison officer provides air defense information to the brigade S3 as input for the brigade warning order.**

5. **The air defense liaison officer and the air defense artillery battery commander receive initial planning guidance from the brigade commander.**

6. **The air defense liaison officer prepares paragraphs 1 and 2 of the air defense estimate.**

7. **The air defense liaison officer participates in the course of action development.**

8. **The air defense liaison officer participates in the brigade course of action analysis.**

9. **The air defense liaison officer compares courses of action with the brigade staff.**

10. **The air defense liaison officer receives the course of action decision from the brigade commander.**

11. **The air defense liaison officer and the air defense artillery battery commander prepare the air defense relevant sections of the brigade order.**

12. **The air defense liaison officer/air defense artillery battery commander participates in the brigade orders brief.**

13. **The air defense artillery battery commander plans for conducting air defense operations.**

PREPARATION PHASE

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.**

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.**

EXECUTION PHASE

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.**

17. **The brigade and the air defense artillery battery defend against enemy air attacks.**

18. **The air defense artillery battery maintains continuous operations.**

TASK LIST

The purpose of this component is to identify, organize, and list in logical sequence all of the tasks and subtasks necessary to perform this function. Normally, the primary participants responsible for performing the task are identified. The tasks were extracted from the appropriate doctrinal publications and sources. The specific sources of reference for each task and subtask are shown in brackets [ ] following the task.

In many instances, the wording of the task has been changed from the text found in the Army Training and Evaluation Program - Mission Training Plan (ARTEP-MTP) or Field Manual (FM) to add clarity, context, or meaning. The references allow the user to refer to the original source material for further detail and context, if desired.

For tasks selected from an ARTEP-MTP, the task number has been expanded with a slash (/) to identify the subtask and standard reflected in the ARTEP-MTP task. To illustrate: a task referenced as [ARTEP 71-3-MTP, 71-3-4001/4c] was derived from ARTEP 71-3-MTP, the Mission Training Plan for the Heavy Brigade Command Group and Staff, and identifies brigade S4 section task "71-3-4001, Conduct Logistical Planning," subtask "4," "prepares plans and orders," standard or sub-element "c."

For tasks derived from an FM, the FM number and page number have been provided as a reference. For example, the reference for a task, "The brigade commander demonstrates understanding of mission and higher commander's intent during confirmation briefing to the division commander," would be [FM 101-5, p. 1-9].

Some tasks and subtasks needed to define the function are not contained in ARTEP-MTPs nor can they be derived from FMs. Tasks and subtasks were identified to fill such gaps and were developed during coordination visits with various TRADOC schools, Forces Command (FORSCOM) units, and Combat Training Center (CTCs). These tasks are listed as field notes [FN] and are annotated with their source. For example, tasks identified by CSS Observer-Controllers (OCs) at the National Training Center (NTC) would be referenced as [FN-NTC CSS OCs]. Still other tasks and subtasks were identified based on review of newsletters and other documents published by the Center for Army Lessons Learned (CALL) which capture lessons learned from Army units relevant to doctrine, tactics, techniques, and procedures (DTTP). Tasks derived from CALL publications are referenced as Lessons Learned [LL] with the appropriate document and page number provided. For example, a task extracted from CALL Newsletter 95-6, "National Training Center's 'Fighting with Fires,'" is referenced as [LL-CALL Newsletter 95-6, p. 16].

In some cases, the analysis of the BF resulted in the identification of tasks for which no doctrinal references could be determined. Such tasks were selected based on author experience and a careful study of relevant doctrine. These tasks are referenced as author notes [AN].

Full references for all the source material are listed in the reference section.

PLANNING TASKS

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30 MTP]

   a. The battery XO establishes the battery TOC. [FM 71-3, pp. 3-16]

      1) The battery TOC deploys with the brigade TOC.

         a) The battery XO or TOC NCO coordinates with the: [AN]

            (1) Brigade HHC commander for route and convoy information.

            (2) Brigade signal officer (Bde SO) for communications-electronic operating instructions and specific communications instructions not included in the TSOP.

            (3) Brigade S3 sergeant major (SGM) for security procedures and responsibilities during convoy and CP setup.

            (4) Brigade HHC 1SG for food, ammunition, and other supplies.

         b) The battery XO or TOC NCO ensures that the ADA TOC is integrated into the brigade TOC convoy. [AN]

      2) The battery TOC is integrated into the brigade TOC. [AN]

         a) The battery TOC is included in the brigade TOC layout in accordance with the brigade TOC SOP.

         b) The battery TOC establishes a work area in accordance with the supported brigade TOC SOP.

         c) The battery TOC personnel are integrated into the brigade TOC operating shifts.

      3) The battery TOC establishes and maintains communications on the following nets: [ARTEP 44-177-30-MTP, Tasks 11-4-C302, 44-5-2232]

         a) Division early warning. [ARTEP 44-177-30-MTP, Task 44-5-2232]

         b) Brigade command. [ARTEP 44-177-30-MTP, Task 44-5-2232]

         c) ADA battalion command. [FM 44-64]

         d) Battery command. [FM 44-64]

e) ADA battalion administrative/logistics (A/L) (if applicable). [FM 44-64]

f) ADA platoon nets (as appropriate). [AN]

g) Supported units' command nets (as appropriate). [AN]

4) The battery TOC acquires, evaluates, and communicates information for air defense operations. [AN]

a) Receives information from brigade headquarters.

(1) Initial mission guidance.

(2) Area of brigade operations and location of brigade assets.

(3) Available A2C2 (e.g., Army aviation and CAS flight routes; unmanned aerial vehicle activity) and intelligence information.

(4) Other information as provided in the brigade TSOP.

b) Receives air defense-relevant information from the ADA battalion.

(1) Additional mission guidance.

(2) Air threat intelligence.

(3) ADWs, ADWCS, and LADW.

(4) Other air defense-relevant information as provided in the battalion TSOP.

c) Receives information and reports from subordinate elements.

(1) Tactical situation.

(2) Personnel status.

(3) Equipment status.

(4) Supply status.

(5) Other information as required in the battery TSOP.

d) Processes and evaluates information.

(1) Uses forward area air defense system (FAADS) command, control, communications, and itelligence (C3I) presentation boxes and/or engagement operations (EO) and force operations (FO) map and status boards to display the following information: [STP 44-14II-MQS, Task 01-0401.31-0002]

(a) Tactical situation.

(b) Airspace coordination orders, graphics/overlays, and intelligence information to include third dimension (air) IPB.

(c) Personnel status.

(d) Maintenance and logistical status.

(e) NBC alerts.

(f) Air defense weapon and sensor status and locations.

(g) ADW, ADWCS, and LADW.

(2) Reviews information for required actions during planning, preparation, and execution phases.

e) Communicates information.

(1) Provides information and reports to the brigade and the ADA battalion as needed and as required by TSOPs.

(2) Coordinates information with the brigade staff as part of the integrated brigade TOC.

(3) Provides all relevant air defense and ground tactical information to subordinate units.

b. The battery commander positions subordinate units to perform active air defense for the brigade during planning. [ARTEP 44-177-30-MTP, Task 44-4-2222]

1) The battery commander assigns air defense missions for the subordinate units.

a) The battery provides protection of brigade assets in accordance with brigade priorities.

b) Air defense coverage is coordinated with adjacent air defense elements.

c) Early warning sensors are positioned.

2) ADA platoon/section leaders establish coverage within their established sectors.

3) ADA fire units establish positions and provide air defense.

a) Monitor early warning and section/platoon command nets.

b) Prepare hasty positions.

c) Provide coverage and respond to enemy air threat in accordance with current ADW, LADW, and ADWCS.

d) Continue to prepare for further missions.

(1) Complete ammunition upload.

(2) Verify the load plan and equipment availability.

(3) Conduct preventive maintenance checks and services of equipment.

(4) Anticipate further guidance.

c. Battery elements prepare for combat. [ARTEP 44-177-30-MTP, Task 44-2-2219]

1) First line leaders conduct pre-combat checks in accordance with priorities of work.

2) Crews upload ammunition and supplies.

3) Platoon leaders and platoon sergeants establish resupply procedures with supporting units.

4) The battery establishes a maintenance point for organic vehicles.

5) Leaders account for all assigned personnel.

6) Leaders brief all personnel on the situation and update them as the situation changes.

7) Personnel conduct appropriate measures to maintain OPSEC.

8) Leaders employ cover and concealment techniques for personnel and equipment and continue to construct and reinforce protective positions for the CP and weapons.

9) The XO and platoon leaders coordinate with the artillery fire support element for preplanned protective and supporting fires.

10) First-line leaders monitor communications nets.

11) First-line leaders initiate sleep and rest cycles as the situation permits.

12) Leaders review TSOPs.

13) Leaders conduct rehearsals.

14) Crews perform equipment maintenance as needed.

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.** [FM 44-64; AN; FN-NTC OCs]

a. The ADALO receives the following parts of the division order from the brigade S3: [AN]

1) Base order (5 paragraphs).

2) Task organization.

3) Enemy situation.

4) ADA annex.

5) A2C2 annex.

6) Intelligence annex and IPB of the third dimension. [FN-NTC OCs]

b. The ADALO initiates the air defense estimate. [FM 44-64; AN; FN-NTC OCs]

c. The battery commander or battery XO receives WARNOs from the ADA battalion and from the brigade (when issued following the brigade mission analysis). [FM 71-123]

d. The ADALO/battery commander issues an initial WARNO to battery subordinate units alerting them of upcoming mission with as much information as possible. [FM 71-123; FN-NTC OCs]

3. **The air defense liaison officer conducts mission analysis with the brigade staff.** [FM 71-123; FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 34-130]

a. The ADALO identifies the mission and intent of the corps and division commanders. [FM 71-123, p. 1-12]

b. The ADALO identifies specified, implied, and essential tasks for the ADA battery. [FM 71-123, pp. 1-12]

c. The ADALO determines limitations and restrictions. [FM 101-5; AN]

d. The ADALO determines critical facts and assumptions. [FM 101-5; AN]

e. The ADALO determines A2C2 information. [FM 71-3; AN]

1) Friendly air flight paths.

2) Friendly unmanned aerial vehicle (UAV) launch points, times, and routes.

f. The ADALO conducts the air IPB analysis in conjunction with the brigade S2. [ARTEP 44-177-30-MTP, 44-5-2231]

1) The ADALO receives the initial terrain and threat analysis from the brigade S2.

2) The ADALO, with brigade S2, expands the IPB into the third dimension. [FN-NTC OCs; FM 34-130, pp. 4-1, 4-2]

a) Defines the air defense battlefield environment:

(1) Enemy (fixed-wing, rotary-wing, UAV, cruise missiles [CM], and tactical ballistic missiles [TBM]).

(2) Enemy tactics.

(3) Locations of launch platforms (UAVs/CMs/TBMs).

(4) Locations of enemy airfields.

(5) Locations of forward arming and refuel points (FARP).

(6) Locations of aids to navigation.

(7) Range capabilities of enemy aircraft.

(8) Altitude capabilities of enemy aircraft.

(9) Range capabilities of enemy UAVs, CMs, and TBMs.

(10) Flight profiles of enemy UAVs, CMs, and TBMs.

b) Describes the battlefield effects:

(1) Probable target installations or areas.

(2) Likely air avenues of approach.

(3) Likely drop zones (DZs), landing zone (LZs), or pickup zone (PZs).

(4) Likely standoff orbits.

(5) Line of sight from proposed air defense weapon locations.

(6) Terrain masking.

(7) Effects of weather on air operations.

(8) Expected attack times based on weather and light data, and patterns of enemy activity.

(9) Known and planned obstacles.

c) Evaluates the threat:

(1) Flight tactics.

(2) Ordnance types and availability.

(3) Ordnance delivery techniques.

(4) Technical capabilities of aircraft.

(5) Target selection priorities.

(6) Air strike allocation procedures.

(7) Command, control, and communications (C3) procedures and techniques.

(8) Navigation capabilities.

(9) Past activity in division sector, patterns.

(10) Capabilities to counter friendly air defense assets.

d) Determines enemy COAs based on:

(1) Likely location of enemy FARPs.

(2) Likely timing of air strikes or air assault.

(3) Likely targets and objectives.

(4) Likely air corridors and air avenues of approach.

(5) Enemy flight profiles and strike packages.

(6) Possible enemy reaction to positioning of friendly air defense assets.

e) Identifies targeted area of interest (TAI) for attack by fire support. [FM 44-64]

(1) Enemy forward air control points and UAV ground control assets.

(2) Anticipated locations which enemy helicopters might use for terrain masking to enable movement and attack (forward alighting areas).

(3) Enemy aviation headquarters.

(4) Enemy aids to aviation.

(5) Rural airstrips.

(6) Possible air assault LZs, DZs, or PZs.

(7) Enemy FARPs.

(8) Enemy tactical air or helicopter forward operational bases.

f) Coordinates with Bde FSO and fire support element (FSE) for targeting of air defense relevant TAI with artillery fire. [FM 44-64]

g) Coordinates with Bde S2 for information about enemy ground COA that might impact on positioning ADA battery elements.

g. The ADALO conducts time analysis.

1) Planning timeline that includes such items as:

a) Issue WARNO.

b) Prepare air defense estimate.

c) Develop COAs.

d) Disseminate COA decision.

e) Prepare input for brigade OPORD.

2) Operational timeline that includes such items as:

a) Participation in OPORD brief.

b) Participation in brigade rehearsal.

c) Movement.

d) Mission execution time.

h. The ADALO participates in the mission analysis brief. [FM 71-3; ARTEP 44-177-30-MTP]

1) The ADALO briefs the friendly ADA situation. [AN]

a) The ADA battery task organization, unit strength, and positions.

b) ADA specified, implied, and essential tasks.

c) Assumptions related to air defense.

d) High-to-medium-altitude air defense (HIMAD) coverage for the brigade.

e) Division A2C2 information relating to brigade mission.

f) Division air defense information impacting on brigade air defense operations.

2) The ADALO supports the brigade S2 brief about enemy air. [AN]

3) The ADALO receives from the brigade commander: [FM 71-3, p. 3-3]

a) The brigade restated mission.

b) The brigade essential tasks.

c) The brigade commander's priority for air defense coverage. [ARTEP 44-177-30-MTP, Task 44-4-2201/1]

4. **The air defense liaison officer provides air defense information to the brigade S3 as input for the brigade warning order.** [FM 44-64; AN]

a. The ADALO provides information to the brigade S3 which includes:

1) Enemy air threat strength, composition, and capabilities.

2) Task organization of friendly supporting air defense assets.

3) Current ADW/LADW and ADWCS.

4) Early warning procedures.

5) Other information that could affect air defense operations.

b. The ADALO and the ADA battery commander provide other assistance in the development and issuance of brigade WARNO, as necessary. [FM 44-64; AN]

5. **The air defense liaison officer and the air defense artillery battery commander receive initial planning guidance from the brigade commander.** [FM 101-5, Chap 4, p 4-15; FM 44-64]

a. The ADALO and the ADA battery commander are present at the commander's guidance briefing. [AN]

b. The ADALO receives, in conjunction with the brigade staff: [AN]

1) Enemy COAs that would impact air defense.

2) The restated mission of the maneuver brigade.

3) Division and brigade commanders' intents.

4) The concept of air defense operations.

5) Air defense aspects, requirements, and involvement in corps or division deception plan.

6) Priorities of air defense coverage.

7) Time plans:

a) Brigade staff planning timeline.

b) Initial operational timeline.

8) The type of brigade order to be issued.

9) The type of rehearsal to conduct and air defense requirements for participation.

10) The type of planning process used to develop the order.

11) CCIR applicable to air defense.

c. The ADALO and the ADA battery commander participate in the confirmation brief, if directed. [FM 101-5 p 4-15 and 4-16]

6. **The air defense liaison officer prepares paragraphs 1 and 2 of the air defense estimate.** [FM 101-5, p. C-12; ARTEP 71-3 MTP, Task 71-3-60001/2; FM 44-100, App B]

a. The mission of the ADA battery.

b. The situation, to include:

1) Considerations affecting possible COAs:

a) Brigade operations to be supported.

b) Characteristics of the area of operations.

(1) Weather.

(2) Terrain.

(3) Environmental aspects (e.g., dense air pollution).

c) Enemy air situation.

(1) Disposition.

(2) Composition.

(3) Strength.

(4) Recent and present significant activities.

(5) Peculiarities and weaknesses.

(6) Capabilities.

(7) Doctrinal employment of assets.

(8) Other enemy considerations (e.g., use of smoke to limit visibility).

d) Situation of organic ADA assets.

(1) Current air defense mission, priorities, and tactical situation.

(2) Supporting relationships of battery, platoons, and subordinate air defense sections.

(3) Task organization.

(a) Locations.

(b) Strength and crew manning capabilities.

(c) Availability and operational status of air defense weapon and sensor systems.

(d) Organic weapon system capabilities of brigade subordinate units to include effective engagement range, weapons platforms (e.g., M2, M113, etc.), and basic load and ammunition status.

(4) Types of air defense actions required in the area of operations (e.g., river crossing, choke point, obstacle, etc.).

(5) Anticipated difficulties in providing air defense to support the mission (e.g., impact of enemy employment of NBC).

c. Special considerations:

1) CAFAD, which includes direct and indirect fires, SAFAD, and short-range air defense (SHORAD) capabilities.

2) Key passive air defense measures.

3) ADA control measures (ADW/ADWCS/LADW).

4) Early warning systems status.

5) A2C2 information relevant to current and planned air defense operations:

a) Standard-use Army aircraft flight routes.

b) High density airspace control zone.

c) Weapons free zone.

7. **The air defense liaison officer participates in the brigade's course of action development.** [ARTEP 44-177-30-MTP; ARTEP 71-3-MTP; FM 44-64]

a. The ADALO receives COAs under consideration from the brigade S3. [AN]

b. The ADALO prepares an air defense COA to support each brigade COA. [ARTEP 44-177-30-MTP, Task 44-4-2201/3]

1) The ADALO bases air defense asset employment on doctrinal guidelines: [FM 44-64, p. 2-3]

a) Mutual support.

b) Overlapping fires.

c) Balanced fires.

d) Weighted coverage.

e) Early engagement.

f) Defense in depth.

2) The ADALO integrates brigade air defense capable assets (CAFAD, which includes direct and indirect fires, and SAFAD) in overall air defense plan. [AN; FN-NTC OCs]

3) The ADA battery commander performs risk management analysis for each COA. [ARTEP 44-177-30-MTP, Task 44-2-R326]

c. The ADALO develops an early warning plan to support each brigade COA. [ARTEP 44-177-30-MTP, Task 44-5-2232/2, 3]

d. The ADALO identifies critical air defense events to be included on the brigade synchronization matrix. [AN]

8. **The air defense liaison officer participates in the brigade course of action analysis.** [FM 101-5, p. 4-28; FM 44-64; ARTEP 44-177-30-MTP]

   a. The ADALO participates in the brigade staff's war-gaming process with the brigade staff with concentration on: [FM 101-5] [AN]

      1) The commander's air defense priorities.

      2) Anticipated enemy air actions during battle phases and counters to these threats.

      3) Available capabilities and use of CAFAD to augment ADA assets.

      4) Requirements for effective early warning.

   b. The ADALO war games each COA considering: [AN]

      1) The brigade commander's priority of coverage. [ARTEP 44-177-30-MTP, Task 44-4-2201/1]

      2) The brigade commander's overall intent. [FM 71-3, p. 3-3]

      3) Employment guidelines of mutual support, overlapping fires, balanced fires, weighted coverage, early engagement, and defense in depth. [FM 44-64, p. 2-3]

      4) Mobility requirements for movement and repositioning of air defense assets.

      5) Survivability requirements for personnel and equipment.

      6) Resupply requirements to include prestock of ammunition and emergency resupply.

      7) Fire support for air defense area of interest.

      8) Required support for suppression of enemy air defenses (SEAD) operations.

      9) Changes in air defense command and support relationships.

      10) A2C2 effects on each COA. [FM 44-64, p. H-4]

      11) Actions necessary to preclude hindering or restricting friendly air operations.

9. **The air defense liaison officer compares courses of action with the brigade staff.** [ARTEP 71-3-MTP; Task 71-3-3001/3a; FM 101-5, p. 4-32]

a. The ADALO prepares a COA decision matrix for air defense and recommends the brigade COA that can best be supported by ADA assets. [FM 101-5, p. 4-32]

b. The ADALO participates and provides air defense input into the COA decision brief. [ARTEP 71-3-MTP; Task 71-3-3001/3a]

10. **The air defense liaison officer receives the course of action decision from the brigade commander.** [ARTEP 71-3-MTP, Task 71-3-3002]

a. The ADALO is present and focuses on key elements of the decision which are most relevant to air defense:

1) The finalized commander's intent for air defense employment.

2) The concept of the operation as applied to air defense.

3) Specific command and support relationships for subordinate air defense units.

4) The main effort and how ADA support will be most effective.

5) Identification of brigade assets critical to mission accomplishment, i.e., brigade commander's priorities.

6) Where the brigade commander is willing to accept risk.

b. The ADALO coordinates with other staff officers and receives input and assistance from the ADA battery commander to develop and prepare the air defense plan to support the COA selected. [AN]

c. The ADALO provides the selected brigade COA and war-gaming notes to the ADA battery commander to facilitate parallel planning. [AN]

11. **The air defense liaison officer and the air defense artillery battery commander prepare the air defense relevant sections of the brigade order.** [ARTEP 71-3-MTP, Task 71-3-6001/3; FM 44-64]

a. The ADALO and the ADA battery commander provide input for paragraph 3a3. (counter-air operations) to the base order: [AN]

1) The brigade commander's intent for air defense.

2) ADA support of concept of the operation.

a) Task organization.

b) Priorities of coverage.

c) Special air defense considerations.

3) Passive air defense considerations and measures to be employed.

4) Early warning procedures.

b. The ADALO refines the ADA plan based on the brigade commander's guidance. [AN]

c. The ADALO/ADA battery commander prepares the ADA annex to the brigade order: [AN; FN-NTC OCs]

1) Situation:

a) Enemy aircraft types, number, and capabilities.

b) Location and mission of HIMAD assets that affect the brigade sector.

c) Location and mission of other friendly SHORAD assets that could affect the brigade sector.

2) The mission of the ADA battery.

3) The execution of the ADA mission by phase.

a) Command and support relationships of ADA platoons and sections.

b) Tasks to be performed by subordinate units.

c) The scheme of air defense coverage of the brigade mission.

d) Special instructions or conditions that affect the air defense plan.

e) Rules of engagement.

f) CAS.

g) Artillery coordination for air defense relevant (e.g., threat UAV launching points) TAIs.

h) Engineer coordination for construction of positions and improvement of mobility.

4) Service and support.

a) The support plan for the battery and subordinate units.

b) Ammunition resupply points.

c) Casualty collection points.

d) NBC decontamination points.

5) Command and signal.

a) Signal.

(1) Early warning frequency.

(2) Signal operating instructions (SOI) edition in effect.

(3) Special codewords.

(4) Identification, friend, or foe code in use.

(5) Current ADW/ADWCS/LADW.

b) Command.

(1) Locations of brigade, ADA battalion, and battery TOCs.

(2) The location of the battery CP.

(3) The location of the battery commander.

d. The ADALO provides air defense input to the brigade S3 for review and inclusion in the brigade OPORD. [AN; FN]

e. The ADALO participates with brigade S3 Air, ALO, AVLO, and FSO in development of A2C2 annex of OPORD. [FM 44-64, p. H-4]

12. **The air defense liaison officer/air defense artillery battery commander participates in the brigade orders brief.** [ARTEP 71-3-MTP, Task 71-3-3002; FM 101-5, Chap 4; FM 44-64]

a. The ADALO/ADA battery commander briefs the friendly ADA portion of the brigade order, to include:

1) Task organization. [ARTEP 71-3-MTP, Task 3002]

2) HIMAD coverage. [AN]

3) Overall ADA plan. [ARTEP 71-3-MTP, Task 3002]

b. The ADALO/ADA battery commander emphasizes the use of passive and active air defense for all brigade units. [FM 101-5, Chap 4]

c. The ADALO/ADA battery commander reviews principles of active air defense with both combined arms and small arms in brigade units. [FM 44-64, p. C-13]

1) Destroy the threat.

2) Force the threat away from friendly positions.

3) Force the threat to fly higher, thereby making the threat more vulnerable to destruction by friendly air or ADA.

4) Spoil the hostile pilots' aim as they engage friendly forces.

5) Engage with high volume of fire.

d. The ADALO/ADA battery commander reviews air defense control procedures (ADWCS, ADW, and LADW) and how changes are initiated.

e. The ADALO/ADA battery commander answers questions pertaining to the air defense plan to ensure that the plan for air defense operations is understood by all key participants. [FM 101-5, Chap 4]

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

a. The battery TOC continues as an integrated component of the brigade TOC and maintains established communications. [ARTEP 44-177-30-MTP; AN]

b. The ADA battery receives OPORDs from the brigade and the ADA battalion. [FM 101-5; FM 71-123]

1) The battery commander or battery XO receives the OPORD from the ADA battalion; areas of interest: [FM 71-123]

a) Division mission.

b) ADA battalion mission.

c) ADA task organization.

d) Enemy air situation.

e) ADA battalion commander's intent.

f) Tasks to subordinate units.

g) ADA battalion DSM.

2) The battery commander or battery XO receives the brigade OPORD and reviews information acquired during his and ADALO's participation in the brigade orders process. Focus is on key elements relevant to AD: [AN; FN-NTC OCs]

a) Base order (5 paragraphs).

b) Task organization.

c) Enemy situation.

d) Operational overlay.

e) ADA annex.

f) Third dimension IPB.

g) A2C2 annex.

c. The battery commander prepares and issues an ADA battery WARNO that contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/2]

1) The overall situation, to include:

a) Enemy units' strength, composition, and capabilities.

b) Friendly situation, to include higher echelon status, if known.

c) Presence of friendly supporting air defense assets.

2) The brigade's mission.

3) The tentative task organization.

4) A description of the general area of operation.

5) ADW, ADWCS, and LADW.

6) MOPP status.

7) The time of the mission.

8) Other mission or planning details that would assist subordinate units in mission planning.

9) The anticipated time and place for battery OPORD issue.

d. The ADA battery commander creates a decision support template (DST) in developing an initial plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/4 FM 44-64]

1) The ADA battery commander considers:

a) The brigade commander's intent and priorities.

b) The ADA battalion commander's intent and priorities.

c) Available ADA assets in the brigade's sector.

d) Enemy's air COAs.

2) The ADA battery commander reviews the third dimension IPB for the brigade. [ARTEP 44-177-30-MTP, Task 44-5-2231]

3) The ADA battery commander makes a tentative plan that:

a) Supports the brigade scheme of maneuver.

b) Supports the brigade and ADA battalion commanders' intents.

c) Incorporates early warning. [ARTEP 44-177-30-MTP, Task 44-5-2032]

(1) Has a plan for retransmitting early warning messages over command nets.

(2) Early warning supports the main effort and the brigade commander's intent.

(3) Concentrates early warning resources on choke points and templated enemy rotary wing ambush sites.

(4) Enhances ground-based sensor survivability during movement to contact and hasty attacks.

d) Considers the effects of:

(1) Terrain.

(2) Weather.

(3) Battlefield conditions:

(a) Obstacles.

(b) NBC effects.

e) Plan is suitable, feasible, and acceptable:

(1) Suitability:

(a) Plan will accomplish the mission.

(b) Plan complies with Bde and ADA Bn commanders' intents.

(2) Feasibility:

(a) Time to execute the plan as designed.

1 Duration of events.

2 Time and distance factors for movement.

(b) Positions required to provide coverage are available.

(3) Acceptability:

(a) Mission success is not at significant risk of failure.

(b) Hazards to soldiers, equipment, and supplies are within acceptable limits.

f) Directs actions to minimize identified risks to troops and equipment. [ARTEP 44-177-30-MTP, Task 71-2-C326]

(1) Risks or safety hazards are identified by the battery commander.

(2) Risks and safety hazards are evaluated by battery commander.

(3) The battery commander and subordinate leaders eliminate or reduce risks and safety hazards.

(4) Safety procedures are enforced at all levels.

e. The ADA battery commander conducts a reconnaissance of the operational area. [ARTEP 44-177-30-MTP, Task 44-5-2005]

1) The ADA battery commander studies:

a) The operational area map.

b) The operations graphics overlay.

c) The ground and air IPB.

2) The ADA battery commander selects tentative locations or routes in which to deploy subordinate units.

3) If time and battlefield conditions permit, the ADA battery commander conducts reconnaissance to confirm the validity and feasibility of the ADA plan.

f. The ADA battery commander/ADALO coordinates land space management and unit movement requirements with the brigade XO. [AN]

g. The ADA battery commander finalizes his plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/5]

1) The ADA battery commander refines his initial plan as necessary based on:

a) Changes to enemy situation.

b) Reconnaissance of the operational area.

c) Changes to battery or brigade missions.

d) Changes in available ADA assets.

2) The ADA battery commander writes the ADA battery OPORD which contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/5]

a) Situation:

(1) Enemy forces.

(a) Enemy air order of battle (units and location).

(b) Air threat (aircraft types, number, and capabilities).

(c) Air avenues of approach.

(d) Terrain and weather constraints that indicate enemy selection of particular weapons platform.

(e) Additional threat data, (e.g., airfield locations, loiter times, turnaround times, sortie rates, etc.)

(2) Friendly forces.

(a) Mission and location of ADA battalion.

(b) Mission and location of adjacent HIMAD and SHORAD units.

(3) Attachments and detachments.

(a) Air defense elements attached from the battalion or from other units to include sensors, maintenance, and communications sections.

(b) Organic elements detached to the battalion or other units.

b) Execution of ADA mission.

(1) Concept/scheme of air defense operations by phase to include intent, objectives, and priorities.

(2) Tasks to subordinate air defense units.

(3) Command and support relationship of subordinate units.

(4) Special instructions that affect the air defense plan.

(a) ADW, ADWCS, and LADW.

(b) Hostile criteria.

(c) Rules of engagement.

(d) Passive air defense measures.

(e) CAFAD and SAFAD.

(f) Early warning (e.g., method and format for passing air threat information to brigade and battery elements).

c) Service and support.

(1) Support plan for battery and subordinate units.

(a) Resupply procedures (e.g., the logistics package), identifying the relationships and responsibilities for execution.

(b) Maintenance procedures, identifying the relationships and responsibilities for execution.

(2) Ammunition resupply points.

(3) Casualty collection points.

(4) NBC decontamination points.

(5) Plan for constructing survivability positions.

d) Command and signal.

(1) Signal.

(a) Early warning frequency.

(b) SOI edition in effect.

(c) Special codewords.

(2) Command.

(a) Location of the brigade TOC.

(b) Location of the battery CP.

(c) Location of the battery commander.

3) The ADA battery commander completes the DSM. [FM 44-64; AN; FN-USAADASCH]

h. The battery commander issues the ADA battery OPORD and DSM. [ARTEP 44-177-30-MTP, Task 44-4-2201/6; AN; FN-USAADASCH]

1) The battery commander briefs platoon leaders and battery CP personnel.

2) The battery commander conducts a confirmation brief to ensure that the OPORD or FRAGO is clearly understood.

3) The battery commander ensures that the platoons have maps of the operational area.

4) The battery commander conducts a confirmation brief to ensure that platoon leaders understand the division, brigade, battalion, and battery commander's intents.

PREPARATION PHASE

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

a. Brigade units prepare for air defense operations. [FM 44-8]

1) Employ passive air defense measures.

a) Attack avoidance measures.

(1) Concealment.

(2) Camouflage.

b) Damage limiting measures.

(1) Dispersion of units and weapon systems.

(2) Protective positions.

(3) Use of cover.

2) Rehearse active air defense measures during unit rehearsals.

a) Creation of volume of fire using all combined arms direct-fire weapons possible.

b) Selection of aim point.

(1) Rotary wing aircraft.

(a) Crossing - ½ football field in front of nose.

(b) Hovering or directly at you - slightly above aircraft body.

(2) Fixed wing aircraft.

(a) Crossing - 2 football fields in front of nose.

(b) Overhead - 2 football fields in front of nose.

(c) Directly at you - slightly above aircraft nose.

c) Designation of air guards.

d) Designation of visual and audible alarms. [FM 44-8]

(1) Red squares (with outline lit at night).

(2) Unbroken warbling siren for 1 minute.

(3) Succession of long blasts on vehicle horns, whistles, or other wind instruments in a ratio of 3 to 1 (3 seconds on and 1 second off).

(4) Vocal "air attack" or corresponding local ADW term.

b. The ADA battery continues air defense in support of the brigade and concurrently prepares for conducting air defense operations to support the new mission. [AN; FN-NTC OCs]

1) The ADA battery conducts supply and maintenance operations.

a) Direct support (DS) ADA platoons coordinate with their supported unit for supply and maintenance or with the ADA battery as applicable, if performing a general support (GS) mission.

(1) Coordinate with the TF support platoon for Class (CL) IV and V.

(2) Coordinate with the TF battalion S4 for CL II, III, VI, and VII.

(3) Coordinate with the TF battalion maintenance officer for CL IX and recovery.

(4) Coordinate with the TF battalion HHC support platoon leader for CL I.

(5) Coordinate with the TF battalion aid station for CL VIII.

b) The battery headquarters coordinates and conducts supply and maintenance operations for headquarters and GS ADA elements.

(1) The battery commander/battery XO coordinates with the brigade FSB for CL II, III, IV, VI, VIII, IX.

(2) The battery XO coordinates with the brigade S4 for CL V and VII.

(3) The battery XO/1SG coordinates with the brigade HHC 1SG for CL I.

c) The battery XO coordinates with the ADA battalion S4 or as necessary with the division main support battalion for CL IX for Avenger systems, if required.

2) Subordinate ADA units coordinate operational and sustainment requirements with their supported units. [AN]

a) Platoon/section leaders participate in the supported unit planning process.

b) Platoon/section leaders provide reports as required by the supported unit TSOPs, e.g., personnel strength and information to the supported unit S1.

c) Platoon/section leaders coordinate with respective TF S3s to ensure that the supported unit includes ADA units in movement orders.

3) The ADA battery conducts OPSEC. [AN]

a) Platoon leaders coordinate, establish, and confirm OPSEC requirements with supported units.

b) Battery leaders confirm to the battery commander their understanding of OPSEC requirements and their accomplishment of OPSEC briefs to subordinate personnel.

c) Platoons perform OPSEC measures and provide local security.

4) The ADA battery commander provides command presence. [AN]

a) The ADA battery commander visits key locations.

(1) Inspects preparations.

(2) Encourages soldiers.

(3) Makes immediate spot corrections as necessary.

(4) Recognizes achievement.

b) The ADA battery commander keeps in constant communication with the CP and subordinate leaders.

c. The ADALO/battery commander and the ADA battery conduct rehearsals. [FM 71-3; FN-NTC OCs]

1) The ADALO/battery commander participates in the brigade rehearsal. [FM 71-3, pp. 3-27, 28]

a) Briefs the TFs and other battalion commanders on ADA actions and locations on the battlefield.

(1) DS air defense assets units with supported TFs.

(2) GS air defense units in the brigade area.

(3) High altitude air defense unit coverage of the brigade area.

b) Ensures that air defense coverage is synchronized to apply maximum combat power when and where desired.

c) Reviews and receives verbal confirmations from TF commanders that verify their understanding of the correct employment of all main gun and SAFAD.

d) Reviews and receives verbal confirmation from TF commanders that verify their understanding of ADW, ADWCS, and LADW and TSOP control procedures which initiate or trigger changes. [FM 44-64, pp. 2-34, 2-35]

e) Answers any questions pertaining to air defense.

f) Records and implements changes to the plan.

(1) Determines changes to be implemented.

(2) Issues a FRAGO containing the changes to all subordinate elements.

(3) Conducts a confirmation brief by subordinate leaders to verify changes are understood.

g) Deconflicts any A2C2 issues impacting air defense. [FM 44-64, p. H-4]

2) The ADA battery conducts an air defense rehearsal. [FM 71-3, pp. 3-27, 28]

a) Includes all the key leaders in the battery (determined by the commander).

b) Directed and led by the battery commander.

c) Conducted on:

(1) A sand table or terrain model (preferred method).

(2) The battery command net if all key players have proper maps and overlays.

d) Usually follows a logical sequence; refers to the DSM: [FN-USAADASCH]

(1) Roll call (ensures that all key participants are present).

(2) Orientation of terrain model or map to actual ground.

(3) Briefing of the timeline.

(4) Designation of a recorder.

(5) Reading of the mission statement.

(6) Briefing of the current enemy situation.

(7) Key leaders brief locations and situation at start time.

(8) Time sequence is portrayed; all elements brief their actions in sequence; items addressed include:

(a) Actions to attack enemy air.

(b) Actions to preclude hindering or restricting friendly air activity.

(c) Location and movement route to alternate positions.

(d) Actions to reestablish communications and receipt of early warning information.

(e) Actions in an NBC environment.

(f) Treatment and evacuation of wounded.

(g) Any other mission peculiar actions required.

(9) Enemy ground and air actions are portrayed.

(10) Situation and actions at each decision point (DP) are described; criteria for decisions to change the plan are determined for each DP.

(11) Key combat service (CS) and CSS actions are scheduled at the appropriate times in sequence.

(12) At the termination, recorder restates recommended changes, required coordination, or needed clarifications identified during the rehearsal.

(13) The termination of the rehearsal occurs when the commander is satisfied that objectives are met.

(14) The commander directs necessary changes and addresses principal concerns.

(15) Additional coordination actions deemed necessary based on rehearsal are initiated.

3) ADA DS platoons participate in TFs' rehearsals.

a) Confirm actions expected/required by TF commanders.

b) Adjust TF air defense relevant plans and orders as required.

c) Notify the battery commander and the battery CP about changes and adjustments to plans and orders.

d) Conduct platoon rehearsal.

(1) Conducted by platoon leaders.

(2) Confirm actions expected and required by battery commander.

(3) Adjust the battery air defense plan and orders as required.

(4) Disseminate changes throughout the battery and to affected brigade elements.

4) ADA GS platoons conduct rehearsals.

a) Conducted by platoon leaders.

b) Confirm actions expected and required by battery commander.

c) Adjust the battery air defense plan and orders as required.

d) Disseminate changes throughout the battery and to affected brigade elements.

5) Changes to the plan are recorded and implemented by the battery commander.

a) Determines what changes need to be implemented.

b) Issues a FRAGO to all subordinate elements.

c) Conducts a confirmation brief to confirm that changes are understood.

d) Provides relevant information to the ADALO for inclusion in refinement of the brigade OPORD.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

a. Brigade CPs and air defense battery TOC receive air defense information. [AN]

1) Division intelligence summaries and spot reports (SPOTREPs).

2) Brigade subordinate unit situation reports (SITREPs).

3) ADA battery TOC updates to include continual forward area air defense command, control, communications, and intelligence air picture of brigade.

4) Early warning net broadcasts.

5) Required adjustments to the brigade OPORD based on rehearsals.

b. Brigade CPs assess impact of air defense information on the brigade OPORD. [AN]

1) The brigade S3, in conjunction with the ADALO, reviews input and develops changes to the plan and makes applicable recommendations to the brigade commander.

2) The brigade commander directs changes to the OPORD if necessary.

c. Brigade CPs direct actions and communicate air defense information: [FM 44-64; AN]

1) Issue a FRAGO (if applicable) and refine brigade OPORD products.

2) Issue changes and update status to ADWs and ADWCS.

3) Rebroadcast early warning information and messages.

d. Brigade subordinate units receive and respond to air defense information. [FM 44-64; AN]

1) Modify plans based on brigade FRAGOs and the refined brigade OPORD.

2) Retransmit changes to ADWs and ADWCS.

3) Rebroadcast early warning information and messages.

e. The ADA battery CP and the ADA battery commander manage and assess air defense information and maintain command, control, and communications (C3). [ARTEP 44-177-30-MTP, Task 44-4-2203]

1) The ADA battery receives information from:

a) Brigade.

b) ADA battalion.

c) Subordinate units.

2) The ADA battery commander evaluates information for: [ARTEP 71-3-MTP, Task 71-3-6001/1]

a) Changes to guidance, direction, and information.

b) Desired brigade endstate with what is possible based on the current ADA situation and trends.

c) Information which confirms or refutes IPB and may affect achieving the brigade commander's intent.

d) Answers to intelligence queries about enemy air capabilities.

e) Changes to the friendly air situation.

f) Adjustments to subordinate unit operations.

g) Changes to locations and air defense coverage by divisional assets.

3) The CP maintains air defense products:

a) IPB of third dimension.

b) Air defense graphics with unit locations.

c) ADW/ADWCS/LADW.

d) CP personnel maintain a journal of events. [ARTEP 44-177-30-MTP, Task 44-4-2203]

4) The ADA battery communicates information:

a) The CP provides reports as required by brigade and ADA battalion TSOPs.

b) The CP disseminates information and FRAGOs (if applicable) to subordinate units. [ARTEP 44-177-30-MTP, Task 44-4-2203]

EXECUTION PHASE

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

a. The battery commander directs and leads subordinate forces. [FM 101-5, Chap 1, 4; FM 71-3, Chap 3; Battle Command Techniques and Procedures, Chap 1-4; Battle Command, (April 11, 1994), pp. 10-13, 32-37; ST 101-5; FM 71-3, Chap 3; FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chap 1, 2; ARTEP 44-177-30-MTP]

1) The battery commander directs subordinate units by: [AN]

a) Ensuring that subordinate leaders have a clear understanding of his concept and intent.

b) Positioning himself where he can see portions of the battlefield critical to air defense and can provide command and control to subordinate elements.

c) Directing the execution of the battle:

(1) Intervening when and where necessary.

(2) Ensuring continuous execution.

d) Maintaining communication on:

(1) Brigade command net.

(2) Battery command net.

2) The ADA battery commander exercises leadership during the execution of the battle by: [FM 101-5, Chap 1, 4; FM 71-3, Chap 3; Battle Command Techniques and Procedures, Chap 1-4; Battle Command, pp. 10-13, 32-37; ST 101-5; FM 71-3, Chap 3; FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chaps 1, 2]

a) Being professionally competent.

b) Inspiring soldiers with the will to win.

c) Sharing the hardships and dangers of his soldiers.

d) Demonstrating both mental and physical stamina.

e) Displaying physical and moral courage (making the difficult choices and decisions).

f) Issuing timely, clear, and concise guidance and orders to provide the battery subordinate leaders with purpose, direction, and motivation.

g) Maintaining his perspective and focus on the battery mission, regardless of the turmoil surrounding him.

h) Demonstrating flexibility to quickly adjust to rapidly changing situations to accomplish the mission.

i) Visualizing and thinking in dimensions of time and space as to the consequences of actions.

j) Visualizing follow-on battery missions.

k) Providing subordinate leaders with a vision of future operations.

l) Establishing and reinforcing an attitude of teamwork throughout the battery.

m) Fostering and encouraging initiative in subordinate leaders.

n) Delegating authority whenever appropriate.

o) Providing accurate, objective reports to the brigade commander.

p) Getting needed rest.

3) The ADA battery commander maintains unit discipline and morale by: [FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chap 4; Battle Command, pp. 10-13]

a) Keeping the soldiers informed of the current situation.

b) Making personal contact with soldiers.

c) Reassuring subordinates in a calm manner.

d) Ensuring that soldiers have the opportunity to rest, eat, and otherwise refit as conditions permit.

e) Acting decisively.

f) Giving precise, simple, and easy-to-understand orders.

g) Checking to see that his orders are carried out.

h) Ensuring that brigade subordinate leaders and other supporting elements cross-talk on the battery command nets to:

(1) Coordinate actions and activities.

(2) Exchange information.

(3) Assist each other as possible.

(4) Integrate and synchronize activities.

(5) Prevent fratricide.

(6) Keep everyone updated on the current situation.

(7) Allow the battery commander and the battery TOC to anticipate upcoming requirements.

i) Observing subordinate leaders for indications of degradation in performance.

j) Monitoring himself and the subordinate leaders for degradation of leadership ability based upon physical and/or mental stress or exhaustion:

(1) Self monitoring of own physical and mental state.

(2) The battery XO/ADALO monitors the battery commander's condition and recommends rest periods.

(3) Ensuring that subordinate leaders have and execute a rest schedule for themselves and their soldiers.

k) Ensuring that CSS operations that contribute to morale are conducted as conditions permit.

l) Recognizing unit and individual achievement and performance.

m) Using the battery 1SG's assistance in maintenance of unit discipline and morale.

b. The ADA battery commander maintains situational awareness. [TRADOC Pam 11-9, Chap 7 and App D; FN]

1) The ADA battery commander continuously updates his estimate based on his assessment of new information:

a) Orders and FRAGOs from the brigade.

b) Changes to METT-T.

c) Information about CAS, Army aviation, and UAV activity.

2) The ADA battery commander projects the outcome of the current battle based on his evaluation of the current plan and the overall situation.

3) The ADA battery commander adheres to the current plan if there are no significant changes to METT-T.

c. The ADA battery commander conducts hasty planning to develop and issue a FRAGO directing changes to the battery plan when changes to METT-T render the current plan inappropriate. [FN-NTC OCs]

1) The ADA battery commander/battery CP issues a WARNO to alert subordinate elements when the plan changes.

2) The ADA battery commander conducts a hasty planning process.

3) The ADA battery commander issues a FRAGO with changes.

4) Subordinate elements, the brigade main CP, and the ADA battalion CP receive FRAGOs.

17. **The brigade and the air defense artillery battery defend against enemy air attacks**. [FM 71-3; ARTEP 71-2-MTP, Task 7-1-3911; FM 44-64; ARTEP 44-177-30-MTP]

a. The brigade, brigade subordinate units, and the ADA battery receive and disseminate changes to ADW/LADW and ADWCS from division.

b. The brigade, brigade subordinate units, and the ADA battery receive early warning. [ARTEP 44-177-30-MTP, Task 44-5-2232]

1) The brigade TOC and the battery CP receive early warning from the division early warning net.

2) Other brigade units receive an early warning over the brigade command net.

c. The brigade, brigade subordinate units, and the ADA battery respond to an early warning message. [FM 71-3; ARTEP 44-177-30-MTP]

1) The brigade TOC rebroadcasts the early warning message over the brigade command net.

2) Other brigade units rebroadcast the early warning over their command nets or other units nets as stated in respective TSOP.

3) The ADA battery CP rebroadcasts the early warning over the battery command net.

4) Air defense systems prepare to engage enemy aircraft. [ARTEP 44-177-30-MTP]

5) Affected brigade combat systems (e.g., Bradley Fighting Vehicles) prepare to use CAFAD to engage aircraft. [FM 71-3, pp. 2-7; FM 44-8]

6) Other affected units disperse and employ passive air defense measures. [ARTEP 44-177-30-MTP, Task 44-2-C307]

d. Brigade elements engage enemy aircraft or related activities (e.g., UAV ground control stations). [FM 44-64; ARTEP 44-177-30-MTP]

1) ADA battery direct fires.

2) Indirect fires (CAFAD).

3) Non ADA direct fires (CAFAD, SAFAD).

e. Aircraft are engaged when in range of other brigade weapon systems. [ARTEP 71-2-MTP, Task 7-1-3911; FM 44-8]

f. The ADA battery CP alerts adjacent air defense units of the air threat.

g. ADA battery elements provide after-action engagement reports.

h. ADA battery elements provide battlefield damage assessments.

i. ADA battery elements execute actions to reengage enemy air and sustain air defense operations.

18. **The air defense artillery battery maintains continuous operations.** [FM 44-64; ARTEP 44-177-30-MTP]

a. The ADA battery supports brigade synchronization by maintaining communications during brigade operations. [ARTEP 44-177-30-MTP; ARTEP 71-3-MTP]

1) The battery CP continues to maintain C3 and disseminate information throughout the battle on established nets to include post engagement reports as well as the operational status of personnel and equipment.

2) The battery reestablishes C3 operations in the event of CP loss or destruction.

a) The battery ALOC continuously monitors the battle:

(1) Maintains communications on the following nets:

(a) Battery command.

(b) Early warning.

(c) Brigade A/L.

(2) Continuously updates operational graphics and the air IPB.

(3) Maintains up-to-date operational status of subordinate units.

b) The battery ALOC assumes C3 of the battery if the TOC is lost or destroyed.

3) Succession of command is implemented as stated in the battery OPORD or TSOP.

b. Risks and safety hazards are continuously assessed and mitigated.

c. The ADA battery provides air defense during brigade consolidation and reorganization: [ARTEP 44-177-30-MTP, Task 44-4-2203]

1) Remaining assets:

a) Positioned to cover major air avenues of approach, or

b) Integrated into the maneuver elements.

2) Non-combat effective assets are removed from action and moved to the appropriate processing areas.

d. The ADA battery reacts to NBC hazards. [ARTEP 44-177-30-MTP]

1) The battery headquarters conducts a chemical survey. [ARTEP 44-177-30-MTP, 44-5-R310]

2) The battery conducts deliberate decontamination. [ARTEP 44-177-30-MTP, 03-2-C312]

3) The battery crosses a chemically contaminated area. [ARTEP 44-177-30-MTP, 03-2-C313]

4) The battery crosses a radiologically contaminated area. [ARTEP 44-177-30-MTP, 44-2-R208]

5) The battery performs hasty decontamination. [ARTEP 44-177-30-MTP, 03-2-C311]

6) The battery prepares for an enemy chemical attack. [ARTEP 44-177-30-MTP, 03-2-C202]

7) The battery prepares for an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C206]

8) The battery responds to an enemy chemical attack. [ARTEP 44-177-30-MTP, 03-2-C334]

9) The battery responds to the initial effects of an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C329]

10) The battery responds to the residual effects of an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C328]

e. The ADA battery commander reorganizes combat effective assets to support follow-on missions. [STP 44-14II-MQS, Task 01-0401.31-0005]

1) Conducts CSS operations:

a) Collects battle damage assessment (BDA) from subordinate elements and submits BDA reports to brigade. [ARTEP 44-177-30-MTP, Task 44-4-2211]

b) Prioritizes personnel and equipment replacement.

c) Authorizes controlled substitution of repair parts for weapons systems and equipment regeneration.

d) Supervises maintenance operations and repair and/or recovery of disabled equipment.

e) Requests and executes resupply as necessary. [ARTEP 44-177-30-MTP, Tasks 44-4-2217, 44-4-2218]

f) Supervises care and evacuation of wounded personnel. [ARTEP 44-177-30-MTP, Task 8-2-C316]

g) Conducts graves registration, as required. [ARTEP 44-177-30-MTP, Task 10-5-C318]

h) Supervises the processing of EPWs.

2) Ensures local security for the immediate area.

3) Sends necessary reports per the unit TSOP.

a) Reports status of reorganization and preparedness to continue the mission to brigade CP.

b) Reports status of reorganization and preparedness to continue the mission to ADA battalion CP.

TASKS ORGANIZED BY OUTCOMES

This component links the tasks with the outcomes the task performance supports. Each outcome is linked with all appropriate tasks. This component is used for two purposes. The first is to ensure that each BF outcome is sufficiently supported by all tasks necessary to achieve the outcome. The second is to verify that the outcomes selected support the BF purpose and that they are complete in that no additional outcomes are required to define the BF. This component can be used by trainers to facilitate assessment of training proficiency and to plan training.

Outcome 1

Complete, concise, feasible, suitable, acceptable, and tactically sound orders for air defense are issued by the brigade headquarters and the supporting ADA battery.

Task Elements

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30 MTP]

    a. The battery XO establishes the battery TOC. [FM 71-3, pp. 3-16]

        4) The battery TOC acquires, evaluates, and communicates information for air defense operations. [AN]

            a) Receives information from brigade headquarters.

                (1) Initial mission guidance.

                (2) Area of brigade operations and location of brigade assets.

                (3) Available A2C2 (e.g., Army aviation and close air support [CAS] flight routes; unmanned aerial vehicle activity) and intelligence information.

                (4) Other information as provided in the brigade TSOP.

            b) Receives air defense-relevant information from the ADA battalion.

                (1) Additional mission guidance.

                (2) Air threat intelligence.

                (3) ADWs, ADWCS, and LADW.

                (4) Other air defense-relevant information as provided in the battalion TSOP.

c) Receives information and reports from subordinate elements.

(1) Tactical situation.

(2) Personnel status.

(3) Equipment status.

(4) Supply status.

(5) Other information as required in the battery TSOP.

d) Processes and evaluates information.

(1) Uses FAADS C3I presentation boxes and/or EO and FO map and status boards to display the following information: [STP 44-14II-MQS, Task 01-0401.31-0002]

(a) Tactical situation.

(b) Airspace coordination orders, graphics/overlays, and intelligence information to include third dimension (air) IPB.

(c) Personnel status.

(d) Maintenance and logistical status.

(e) NBC alerts.

(f) Air defense weapon and sensor status and locations.

(g) ADW, ADWCS, and LADW.

(2) Reviews information for required actions during planning, preparation, and execution phases.

e) Communicates information.

(1) Provides information and reports to the brigade and the ADA battalion as needed and as required by TSOPs.

(2) Coordinates information with the brigade staff as part of the integrated brigade TOC.

(3) Provides all relevant air defense and ground tactical information to subordinate units.

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.** [FM 44-64; AN; FN-NTC OCs]

a. The ADALO receives the following parts of the division order from the brigade S3: [AN]

1) Base order (5 paragraphs).

2) Task organization.

3) Enemy situation.

4) ADA annex.

5) A2C2 annex.

6) Intelligence annex and IPB of the third dimension. [FN-NTC OCs]

b. The ADALO initiates the air defense estimate. [FM 44-64; AN; FN-NTC OCs]

c. The battery commander or battery XO receives WARNOs from the ADA battalion and from the brigade (when issued following the brigade mission analysis). [FM 71-123]

3. **The air defense liaison officer conducts mission analysis with the brigade staff.** [FM 71-123; FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 34-130]

a. The ADALO identifies the mission and intent of the corps and division commanders. [FM 71-123, p. 1-12]

b. The ADALO identifies specified, implied, and essential tasks for the ADA battery. [FM 71-123, pp. 1-12]

c. The ADALO determines limitations and restrictions. [FM 101-5; AN]

d. The ADALO determines critical facts and assumptions. [FM 101-5; AN]

e. The ADALO determines A2C2 information. [FM 71-3; AN]

1) Friendly air flight paths.

2) Friendly UAV launch points, times, and routes.

f. The ADALO conducts the air IPB analysis in conjunction with the brigade S2. [ARTEP 44-177-30-MTP, 44-5-2231]

1) The ADALO receives the initial terrain and threat analysis from the brigade S2.

2) The ADALO, with brigade S2, expands the IPB into the third dimension. [FN-NTC OCs; FM 34-130, pp. 4-1, 4-2]

a) Defines the air defense battlefield environment:

(1) Enemy (fixed-wing, rotary-wing, UAV, cruise missiles [CM], and tactical ballistic missiles [TBM]).

(2) Enemy tactics.

(3) Locations of launch platforms (UAVs/CMs/TBMs).

(4) Locations of enemy airfields.

(5) Locations of forward arming and refuel points (FARP).

(6) Locations of aids to navigation.

(7) Range capabilities of enemy aircraft.

(8) Altitude capabilities of enemy aircraft.

(9) Range capabilities of enemy UAVs, CMs, and TBMs.

(10) Flight profiles of enemy UAVs, CMs, and TBMs.

b) Describes the battlefield effects:

(1) Probable target installations or areas.

(2) Likely air avenues of approach.

(3) Likely DZs, LZs, or PZs.

(4) Likely standoff orbits.

(5) Line of sight from proposed air defense weapon locations.

(6) Terrain masking.

(7) Effects of weather on air operations.

(8) Expected attack times based on weather and light data, and patterns of enemy activity.

(9) Known and planned obstacles.

c) Evaluates the threat:

(1) Flight tactics.

(2) Ordnance types and availability.

(3) Ordnance delivery techniques.

(4) Technical capabilities of aircraft.

(5) Target selection priorities.

(6) Air strike allocation procedures.

(7) C3 procedures and techniques.

(8) Navigation capabilities.

(9) Past activity in division sector, patterns.

(10) Capabilities to counter friendly air defense assets.

d) Determines enemy COAs based on:

(1) Likely location of enemy FARPs.

(2) Likely timing of air strikes or air assault.

(3) Likely targets and objectives.

(4) Likely air corridors and air avenues of approach.

(5) Enemy flight profiles and strike packages.

(6) Possible enemy reaction to positioning of friendly air defense assets.

e) Identifies TAI for attack by fire support. [FM 44-64]

(1) Enemy forward air control points and UAV ground control assets.

(2) Anticipated locations which enemy helicopters might use for terrain masking to enable movement and attack (forward alighting areas).

(3) Enemy aviation headquarters.

(4) Enemy aids to aviation.

(5) Rural airstrips.

(6) Possible air assault LZs, DZs, or PZs.

(7) Enemy FARPs.

(8) Enemy tactical air or helicopter forward operational bases.

f) Coordinates with Bde FSO and FSE for targeting of air defense relevant TAI with artillery fire. [FM 44-64]

g) Coordinates with Bde S2 for information about enemy ground COA that might impact on positioning ADA battery elements.

g. The ADALO conducts time analysis.

1) Planning timeline that includes such items as:

a) Issue WARNO.

b) Prepare air defense estimate.

c) Develop COAs.

d) Disseminate COA decision.

e) Prepare input for brigade OPORD.

2) Operational timeline that includes such items as:

a) Participation in OPORD brief.

b) Participation in brigade rehearsal.

c) Movement.

d) Mission execution time.

h. The ADALO participates in the mission analysis brief. [FM 71-3; ARTEP 44-177-30-MTP]

1) The ADALO briefs the friendly ADA situation. [AN]

a) The ADA battery task organization, unit strength, and positions.

b) ADA specified, implied, and essential tasks.

c) Assumptions related to air defense.

d) HIMAD coverage for the brigade.

e) Division A2C2 information relating to brigade mission.

f) Division air defense information impacting on brigade air defense operations.

2) The ADALO supports the brigade S2 brief about enemy air. [AN]

3) The ADALO receives from the brigade commander: [FM 71-3, p. 3-3]

a) The brigade restated mission.

b) The brigade essential tasks.

c) The brigade commander's priority for air defense coverage. [ARTEP 44-177-30-MTP, Task 44-4-2201/1]

4. **The air defense liaison officer provides air defense information to the brigade S3 as input for the brigade warning order.** [FM 44-64; AN]

a. The ADALO provides information to the brigade S3 which includes:

1) Enemy air threat strength, composition, and capabilities.

2) Task organization of friendly supporting air defense assets.

3) Current ADW/LADW and ADWCS.

4) Early warning procedures.

5) Other information that could affect air defense operations.

b. The ADALO and the ADA battery commander provide other assistance in the development and issuance of brigade WARNO, as necessary. [FM 44-64; AN]

5. **The air defense liaison officer and the air defense artillery battery commander receive initial planning guidance from the brigade commander.** [FM 101-5, Chap 4, p 4-15; FM 44-64]

a. The ADALO and the ADA battery commander are present at the commander's guidance briefing. [AN]

b. The ADALO receives, in conjunction with the brigade staff: [AN]

1) Enemy COAs that would impact air defense.

2) The restated mission of the maneuver brigade.

3) Division and brigade commanders' intents.

4) The concept of air defense operations.

5) Air defense aspects, requirements, and involvement in corps or division deception plan.

6) Priorities of air defense coverage.

7) Time plans:

a) Brigade staff planning timeline.

b) Initial operational timeline.

8) The type of brigade order to be issued.

9) The type of rehearsal to conduct and air defense requirements for participation.

10) The type of planning process used to develop the order.

11) CCIR applicable to air defense.

c. The ADALO and the ADA battery commander participate in the confirmation brief, if directed. [FM 101-5 p 4-15 and 4-16]

6. **The air defense liaison officer prepares paragraphs 1 and 2 of the air defense estimate.** [FM 101-5, p. C-12; ARTEP 71-3-MTP, Task 71-3-60001/2; FM 44-100, App B]

a. The mission of the ADA battery.

b. The situation, to include:

1) Considerations affecting possible COAs:

a) Brigade operations to be supported.

b) Characteristics of the area of operations.

(1) Weather.

(2) Terrain.

(3) Environmental aspects (e.g., dense air pollution).

c) Enemy air situation.

(1) Disposition.

(2) Composition.

(3) Strength.

(4) Recent and present significant activities.

(5) Peculiarities and weaknesses.

(6) Capabilities.

(7) Doctrinal employment of assets.

(8) Other enemy considerations (e.g., use of smoke to limit visibility).

d) Situation of organic ADA assets.

(1) Current air defense mission, priorities, and tactical situation.

(2) Supporting relationships of battery, platoons, and subordinate air defense sections.

(3) Task organization.

(a) Locations.

(b) Strength and crew manning capabilities.

(c) Availability and operational status of air defense weapon and sensor systems.

(d) Organic weapon system capabilities of brigade subordinate units to include effective engagement range, weapons platforms (e.g., M2, M113, etc.), and basic load and ammunition status.

(4) Types of air defense actions required in the area of operations (e.g., river crossing, choke point, obstacle, etc.).

(5) Anticipated difficulties in providing air defense to support the mission (e.g., impact of enemy employment of NBC).

c. Special considerations:

1) CAFAD, which includes direct and indirect fires, SAFAD, and SHORAD capabilities.

2) Key passive air defense measures.

3) ADA control measures (ADW/ADWCS/LADW).

4) Early warning systems status.

5) A2C2 information relevant to current and planned air defense operations:

a) Standard-use Army aircraft flight routes.

b) High density airspace control zone.

c) Weapons free zone.

7. **The air defense liaison officer participates in the brigade's course of action development.** [ARTEP 44-177-30-MTP; ARTEP 71-3-MTP; FM 44-64]

a. The ADALO receives COAs under consideration from the brigade S3. [AN]

b. The ADALO prepares an air defense COA to support each brigade COA. [ARTEP 44-177-30-MTP, Task 44-4-2201/3]

1) The ADALO bases air defense asset employment on doctrinal guidelines: [FM 44-64, p. 2-3]

a) Mutual support.

b) Overlapping fires.

c) Balanced fires.

d) Weighted coverage.

e) Early engagement.

f) Defense in depth.

2) The ADALO integrates brigade air defense capable assets (CAFAD, which includes direct and indirect fires, and SAFAD) in overall air defense plan. [AN; FN-NTC OCs]

3) The ADA battery commander performs risk management analysis for each COA. [ARTEP 44-177-30-MTP, Task 44-2-R326]

c. The ADALO develops an early warning plan to support each brigade COA. [ARTEP 44-177-30-MTP, Task 44-5-2232/2, 3]

d. The ADALO identifies critical air defense events to be included on the brigade synchronization matrix. [AN]

8. **The air defense liaison officer participates in the brigade course of action analysis.** [FM 101-5, p. 4-28; FM 44-64; ARTEP 44-177-30-MTP]

a. The ADALO participates in the brigade staff's war-gaming process with the brigade staff with concentration on: [FM 101-5] [AN]

1) The commander's air defense priorities.

2) Anticipated enemy air actions during battle phases and counters to these threats.

3) Available capabilities and use of CAFAD to augment ADA assets.

4) Requirements for effective early warning.

b. The ADALO war games each COA considering: [AN]

1) The brigade commander's priority of coverage. [ARTEP 44-177-30-MTP, Task 44-4-2201/1]

2) The brigade commander's overall intent. [FM 71-3, p. 3-3]

3) Employment guidelines of mutual support, overlapping fires, balanced fires, weighted coverage, early engagement, and defense in depth. [FM 44-64, p. 2-3]

4) Mobility requirements for movement and repositioning of air defense assets.

5) Survivability requirements for personnel and equipment.

6) Resupply requirements to include prestock of ammunition and emergency resupply.

7) Fire support for air defense area of interest.

8) Required support for SEAD operations.

9) Changes in air defense command and support relationships.

10) A2C2 effects on each COA. [FM 44-64, p. H-4]

11) Actions necessary to preclude hindering or restricting friendly air operations.

9. **The air defense liaison officer compares courses of action with the brigade staff.** [ARTEP 71-3-MTP; Task 71-3-3001/3a; FM 101-5, p. 4-32]

a. The ADALO prepares a COA decision matrix for air defense and recommends the brigade COA that can best be supported by ADA assets. [FM 101-5, p. 4-32]

b. The ADALO participates and provides air defense input into the COA decision brief. [ARTEP 71-3-MTP; Task 71-3-3001/3a]

10. **The air defense liaison officer receives the course of action decision from the brigade commander.** [ARTEP 71-3-MTP, Task 71-3-3002]

a. The ADALO is present and focuses on key elements of the decision which are most relevant to air defense:

1) The finalized commander's intent for air defense employment.

2) The concept of the operation as applied to air defense.

3) Specific command and support relationships for subordinate air defense units.

4) The main effort and how ADA support will be most effective.

5) Identification of brigade assets critical to mission accomplishment, i.e., brigade commander's priorities.

6) Where the brigade commander is willing to accept risk.

b. The ADALO coordinates with other staff officers and receives input and assistance from the ADA battery commander to develop and prepare the air defense plan to support the COA selected. [AN]

c. The ADALO provides the selected brigade COA and war-gaming notes to the ADA battery commander to facilitate parallel planning. [AN]

11. **The air defense liaison officer and the air defense artillery battery commander prepare the air defense relevant sections of the brigade order.** [ARTEP 71-3-MTP, Task 71-3-6001/3; FM 44-64]

a. The ADALO and the ADA battery commander provide input for paragraph 3a3. (counter-air operations) to the base order: [AN]

1) The brigade commander's intent for air defense.

2) ADA support of concept of the operation.

a) Task organization.

b) Priorities of coverage.

c) Special air defense considerations.

3) Passive air defense considerations and measures to be employed.

4) Early warning procedures.

b. The ADALO refines the ADA plan based on the brigade commander's guidance. [AN]

c. The ADALO/ADA battery commander prepares the ADA annex to the brigade order: [AN; FN-NTC OCs]

1) Situation:

a) Enemy aircraft types, number, and capabilities.

b) Location and mission of HIMAD assets that affect the brigade sector.

c) Location and mission of other friendly SHORAD assets that could affect the brigade sector.

2) The mission of the ADA battery.

3) The execution of the ADA mission by phase.

a) Command and support relationships of ADA platoons and sections.

b) Tasks to be performed by subordinate units.

c) The scheme of air defense coverage of the brigade mission.

d) Special instructions or conditions that affect the air defense plan.

e) Rules of engagement.

f) CAS.

g) Artillery coordination for air defense relevant (e.g., threat UAV launching points) TAIs.

h) Engineer coordination for construction of positions and improvement of mobility.

4) Service and support.

a) The support plan for the battery and subordinate units.

b) Ammunition resupply points.

c) Casualty collection points.

d) NBC decontamination points.

5) Command and signal.

a) Signal.

(1) Early warning frequency.

(2) SOI edition in effect.

(3) Special codewords.

(4) Identification, friend, or foe code in use.

(5) Current ADW/ADWCS/LADW.

b) Command.

(1) Locations of brigade, ADA battalion, and battery TOCs.

(2) The location of the battery CP.

(3) The location of the battery commander.

d. The ADALO provides air defense input to the brigade S3 for review and inclusion in the brigade OPORD. [AN; FN]

e. The ADALO participates with brigade S3 Air, ALO, aviation liaison officer (AVLO), and FSO in development of A2C2 annex of OPORD. [FM 44-64, p. H-4]

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

b. The ADA battery receives OPORDs from the brigade and the ADA battalion. [FM 101-5; FM 71-123]

1) The battery commander or battery XO receives the OPORD from the ADA battalion; areas of interest: [FM 71-123]

a) Division mission.

b) ADA battalion mission.

c) ADA task organization.

d) Enemy air situation.

e) ADA battalion commander's intent.

f) Tasks to subordinate units.

g) ADA battalion DSM.

2) The battery commander or battery XO receives the brigade OPORD and reviews information acquired during his and ADALO's participation in the brigade orders process. Focus is on key elements relevant to AD: [AN; FN-NTC OCs]

a) Base order (5 paragraphs).

b) Task organization.

c) Enemy situation.

d) Operational overlay.

e) ADA annex.

f) Third dimension IPB.

g) A2C2 annex.

c. The battery commander prepares and issues an ADA battery WARNO that contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/2]

1) The overall situation, to include:

a) Enemy units' strength, composition, and capabilities.

b) Friendly situation, to include higher echelon status, if known.

c) Presence of friendly supporting air defense assets.

2) The brigade's mission.

3) The tentative task organization.

4) A description of the general area of operation.

5) ADW, ADWCS, and LADW.

6) MOPP status.

7) The time of the mission.

8) Other mission or planning details that would assist subordinate units in mission planning.

9) The anticipated time and place for battery OPORD issue.

d. The ADA battery commander creates a DST in developing an initial plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/4 FM 44-64]

1) The ADA battery commander considers:

a) The brigade commander's intent and priorities.

b) The ADA battalion commander's intent and priorities.

c) Available ADA assets in the brigade's sector.

d) Enemy's air COAs.

2) The ADA battery commander reviews the third dimension IPB for the brigade. [ARTEP 44-177-30-MTP, Task 44-5-2231]

3) The ADA battery commander makes a tentative plan that:

a) Supports the brigade scheme of maneuver.

b) Supports the brigade and ADA battalion commanders' intents.

c) Incorporates early warning. [ARTEP 44-177-30-MTP, Task 44-5-2032]

(1) Has a plan for retransmitting early warning messages over command nets.

(2) Early warning supports the main effort and the brigade commander's intent.

(3) Concentrates early warning resources on choke points and templated enemy rotary wing ambush sites.

(4) Enhances ground-based sensor survivability during movement to contact and hasty attacks.

d) Considers the effects of:

(1) Terrain.

(2) Weather.

(3) Battlefield conditions:

(a) Obstacles.

(b) NBC effects.

e) Plan is suitable, feasible, and acceptable:

(1) Suitability:

(a) Plan will accomplish the mission.

(b) Plan complies with Bde and ADA Bn commanders' intents.

(2) Feasibility:

(a) Time to execute the plan as designed.

1 Duration of events.

2 Time and distance factors for movement.

(b) Positions required to provide coverage are available.

(3) Acceptability:

(a) Mission success is not at significant risk of failure.

(b) Hazards to soldiers, equipment, and supplies are within acceptable limits.

f) Directs actions to minimize identified risks to troops and equipment. [ARTEP 44-177-30-MTP, Task 71-2-C326]

(1) Risks or safety hazards are identified by the battery commander.

(2) Risks and safety hazards are evaluated by battery commander.

(3) The battery commander and subordinate leaders eliminate or reduce risks and safety hazards.

(4) Safety procedures are enforced at all levels.

e. The ADA battery commander conducts a reconnaissance of the operational area. [ARTEP 44-177-30-MTP, Task 44-5-2005]

1) The ADA battery commander studies:

a) The operational area map.

b) The operations graphics overlay.

c) The ground and air IPB.

2) The ADA battery commander selects tentative locations or routes in which to deploy subordinate units.

3) If time and battlefield conditions permit, the ADA battery commander conducts reconnaissance to confirm the validity and feasibility of the ADA plan.

f. The ADA battery commander/ADALO coordinates land space management and unit movement requirements with the brigade XO. [AN]

g. The ADA battery commander finalizes his plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/5]

1) The ADA battery commander refines his initial plan as necessary based on:

a) Changes to enemy situation.

b) Reconnaissance of the operational area.

c) Changes to battery or brigade missions.

d) Changes in available ADA assets.

2) The ADA battery commander writes the ADA battery OPORD which contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/5]

a) Situation:

(1) Enemy forces.

(a) Enemy air order of battle (units and location).

(b) Air threat (aircraft types, number, and capabilities).

(c) Air avenues of approach.

(d) Terrain and weather constraints that indicate enemy selection of particular weapons platform.

(e) Additional threat data, (e.g., airfield locations, loiter times, turnaround times, sortie rates, etc.)

(2) Friendly forces.

(a) Mission and location of ADA battalion.

(b) Mission and location of adjacent HIMAD and SHORAD units.

(3) Attachments and detachments.

(a) Air defense elements attached from the battalion or from other units to include sensors, maintenance, and communications sections.

(b) Organic elements detached to the battalion or other units.

b) Execution of ADA mission.

(1) Concept/scheme of air defense operations by phase to include intent, objectives, and priorities.

(2) Tasks to subordinate air defense units.

(3) Command and support relationship of subordinate units.

(4) Special instructions that affect the air defense plan.

(a) ADW, ADWCS, and LADW.

(b) Hostile criteria.

(c) Rules of engagement.

(d) Passive air defense measures.

(e) CAFAD and SAFAD.

(f) Early warning (e.g., method and format for passing air threat information to brigade and battery elements).

c) Service and support.

(1) Support plan for battery and subordinate units.

(a) Resupply procedures (e.g., the logistics package), identifying the relationships and responsibilities for execution.

(b) Maintenance procedures, identifying the relationships and responsibilities for execution.

(2) Ammunition resupply points.

(3) Casualty collection points.

(4) NBC decontamination points.

(5) Plan for constructing survivability positions.

d) Command and signal.

(1) Signal.

(a) Early warning frequency.

(b) SOI edition in effect.

(c) Special codewords.

(2) Command.

(a) Location of the brigade TOC.

(b) Location of the battery CP.

(c) Location of the battery commander.

3) The ADA battery commander completes the DSM. [FM 44-64; AN; FN-USAADASCH]

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

c. The ADA battery commander conducts hasty planning to develop and issue a FRAGO directing changes to the battery plan when changes to mission, enemy terrian, troops, and time available (METT-T) render the current plan inappropriate. [FN-NTC OCs]

2) The ADA battery commander conducts a hasty planning process.

3) The ADA battery commander issues a FRAGO with changes.

Outcome 2

The brigade plan for air defense and the ADA battery's OPORD and FRAGOs are received and understood by key participants.

Task Elements

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.** [FM 44-64; AN; FN-NTC OCs]

d. The ADALO/battery commander issues an initial WARNO to battery subordinate units alerting them of upcoming mission with as much information as possible. [FM 71-123; FN-NTC OCs]

12. **The air defense liaison officer/air defense artillery battery commander participates in the brigade orders brief.** [ARTEP 71-3-MTP, Task 71-3-3002; FM 101-5, Chap 4; FM 44-64]

a. The ADALO/ADA battery commander briefs the friendly ADA portion of the brigade order, to include:

1) Task organization. [ARTEP 71-3-MTP, Task 3002]

2) HIMAD coverage. [AN]

3) Overall ADA plan. [ARTEP 71-3-MTP, Task 3002]

b. The ADALO/ADA battery commander emphasizes the use of passive and active air defense for all brigade units. [FM 101-5, Chap 4]

c. The ADALO/ADA battery commander reviews principles of active air defense with both combined arms and small arms in brigade units. [FM 44-64, p. C-13]

1) Destroy the threat.

2) Force the threat away from friendly positions.

3) Force the threat to fly higher, thereby making the threat more vulnerable to destruction by friendly air or ADA.

4) Spoil the hostile pilots' aim as they engage friendly forces.

5) Engage with high volume of fire.

d. The ADALO/ADA battery commander reviews air defense control procedures (ADWCS, ADW, and LADW) and how changes are initiated.

e. The ADALO/ADA battery commander answers questions pertaining to the air defense plan to ensure that the plan for air defense operations is understood by all key participants. [FM 101-5, Chap 4]

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

c. The battery commander prepares and issues an ADA battery WARNO that contains: [ARTEP 44-177-30-MTP, Task 44-4-2201/2]

1) The overall situation, to include:

a) Enemy units' strength, composition, and capabilities.

b) Friendly situation, to include higher echelon status, if known.

c) Presence of friendly supporting air defense assets.

2) The brigade's mission.

3) The tentative task organization.

4) A description of the general area of operation.

5) ADW, ADWCS, and LADW.

6) MOPP status.

7) The time of the mission.

8) Other mission or planning details that would assist subordinate units in mission planning.

9) The anticipated time and place for battery OPORD issue.

h. The battery commander issues the ADA battery OPORD and DSM. [ARTEP 44-177-30-MTP, Task 44-4-2201/6; AN; FN-USAADASCH]

1) The battery commander briefs platoon leaders and battery CP personnel.

2) The battery commander conducts a confirmation brief to ensure that the OPORD or FRAGO is clearly understood.

3) The battery commander ensures that the platoons have maps of the operational area.

4) The battery commander conducts a confirmation brief to ensure that platoon leaders understand the division, brigade, battalion, and battery commander's intents.

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

b. The ADA battery continues air defense in support of the brigade and concurrently prepares for conducting air defense operations to support the new mission. [AN; FN-NTC OCs]

3) The ADA battery conducts OPSEC. [AN]

b) Battery leaders confirm to the battery commander their understanding of OPSEC requirements and their accomplishment of OPSEC briefs to subordinate personnel.

c. The ADALO/battery commander and the ADA battery conduct rehearsals. [FM 71-3; FN-NTC OCs]

1) The ADALO/battery commander participates in the brigade rehearsal. [FM 71-3, pp. 3-27, 28]

a) Briefs the TFs and other battalion commanders on ADA actions and locations on the battlefield.

(1) DS air defense assets units with supported TFs.

(2) GS air defense units in the brigade area.

(3) High altitude air defense unit coverage of the brigade area.

b) Ensures that air defense coverage is synchronized to apply maximum combat power when and where desired.

c) Reviews and receives verbal confirmations from TF commanders that verify their understanding of the correct employment of all main gun and SAFAD.

d) Reviews and receives verbal confirmation from TF commanders that verify their understanding of ADW, ADWCS, and LADW and TSOP control procedures which initiate or trigger changes. [FM 44-64, pp. 2-34, 2-35]

e) Answers any questions pertaining to air defense.

f) Records and implements changes to the plan.

(1) Determines changes to be implemented.

(2) Issues a FRAGO containing the changes to all subordinate elements.

(3) Conducts a confirmation brief by subordinate leaders to verify changes are understood.

g) Deconflicts any A2C2 issues impacting air defense. [FM 44-64, p. H-4]

2) The ADA battery conducts an air defense rehearsal. [FM 71-3, pp. 3-27, 28]

a) Includes all the key leaders in the battery (determined by the commander).

b) Directed and led by the battery commander.

c) Conducted on:

(1) A sand table or terrain model (preferred method).

(2) The battery command net if all key players have proper maps and overlays.

d) Usually follows a logical sequence; refers to the DSM: [FN-USAADASCH]

(1) Roll call (ensures that all key participants are present).

(2) Orientation of terrain model or map to actual ground.

(3) Briefing of the timeline.

(4) Designation of a recorder.

(5) Reading of the mission statement.

(6) Briefing of the current enemy situation.

(7) Key leaders brief locations and situation at start time.

(8) Time sequence is portrayed; all elements brief their actions in sequence; items addressed include:

(a) Actions to attack enemy air.

(b) Actions to preclude hindering or restricting friendly air activity.

(c) Location and movement route to alternate positions.

(d) Actions to reestablish communications and receipt of early warning information.

(e) Actions in an NBC environment.

(f) Treatment and evacuation of wounded.

(g) Any other mission peculiar actions required.

(9) Enemy ground and air actions are portrayed.

(10) Situation and actions at each DP are described; criteria for decisions to change the plan are determined for each DP.

(11) Key CS and CSS actions are scheduled at the appropriate times in sequence.

(12) At the termination, recorder restates recommended changes, required coordination, or needed clarifications identified during the rehearsal.

(13) The termination of the rehearsal occurs when the commander is satisfied that objectives are met.

(14) The commander directs necessary changes and addresses principal concerns.

(15) Additional coordination actions deemed necessary based on rehearsal are initiated.

3) ADA DS platoons participate in TFs' rehearsals.

a) Confirm actions expected/required by TF commanders.

b) Adjust TF air defense relevant plans and orders as required.

c) Notify the battery commander and the battery CP about changes and adjustments to plans and orders.

d) Conduct platoon rehearsal.

(1) Conducted by platoon leaders.

(2) Confirm actions expected and required by battery commander.

(3) Adjust the battery air defense plan and orders as required.

(4) Disseminate changes throughout the battery and to affected brigade elements.

4) ADA GS platoons conduct rehearsals.

a) Conducted by platoon leaders.

b) Confirm actions expected and required by battery commander.

c) Adjust the battery air defense plan and orders as required.

d) Disseminate changes throughout the battery and to affected brigade elements.

5) Changes to the plan are recorded and implemented by the battery commander.

a) Determines what changes need to be implemented.

b) Issues a FRAGO to all subordinate elements.

c) Conducts a confirmation brief to confirm that changes are understood.

d) Provides relevant information to the ADALO for inclusion in refinement of the brigade OPORD.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

c. Brigade CPs direct actions and communicate air defense information: [FM 44-64; AN]

1) Issue a FRAGO (if applicable) and refine brigade OPORD products.

2) Issue changes and update status to ADWs and ADWCS.

3) Rebroadcast early warning information and messages.

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

c. The ADA battery commander conducts hasty planning to develop and issue a FRAGO directing changes to the battery plan when changes to METT-T render the current plan inappropriate. [FN-NTC OCs]

1) The ADA battery commander/battery CP issues a WARNO to alert subordinate elements when the plan changes.

2) The ADA battery commander conducts a hasty planning process.

3) The ADA battery commander issues a FRAGO with changes.

4) Subordinate elements, the brigade main CP, and the ADA battalion CP receive FRAGOs.

Outcome 3

Bde air defense assets that are prepared to conduct the Bde air defense mission in accordance with the Bde Cdr's concept and intent.

Task Elements

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30 MTP]

a. The battery XO establishes the battery TOC. [FM 71-3, pp. 3-16]

1) The battery TOC deploys with the brigade TOC.

a) The battery XO or TOC NCO coordinates with the: [AN]

(1) Brigade HHC commander for route and convoy information.

(2) Brigade signal officer (Bde SO) for communications-electronic operating instructions and specific communications instructions not included in the TSOP.

(3) Brigade SGM for security procedures and responsibilities during convoy and CP setup.

(4) Brigade HHC 1SG for food, ammunition, and other supplies.

b) The battery XO or TOC NCO ensures that the ADA TOC is integrated into the brigade TOC convoy. [AN]

2) The battery TOC is integrated into the brigade TOC. [AN]

a) The battery TOC is included in the brigade TOC layout in accordance with the brigade TOC standing operating procedures (SOP).

b) The battery TOC establishes a work area in accordance with the supported brigade TOC SOP.

c) The battery TOC personnel are integrated into the brigade TOC operating shifts.

3) The battery TOC establishes and maintains communications on the following nets: [ARTEP 44-177-30-MTP, Tasks 11-4-C302, 44-5-2232]

a) Division early warning. [ARTEP 44-177-30-MTP, Task 44-5-2232]

b) Brigade command. [ARTEP 44-177-30-MTP, Task 44-5-2232]

c) ADA battalion command. [FM 44-64]

d) Battery command. [FM 44-64]

e) ADA battalion A/L (if applicable). [FM 44-64]

f) ADA platoon nets (as appropriate). [AN]

g) Supported units' command nets (as appropriate). [AN]

4) The battery TOC acquires, evaluates, and communicates information for air defense operations. [AN]

a) Receives information from brigade headquarters.

(1) Initial mission guidance.

(2) Area of brigade operations and location of brigade assets.

(3) Available A2C2 (e.g., Army aviation and close air support [CAS] flight routes; unmanned aerial vehicle activity) and intelligence information.

(4) Other information as provided in the brigade TSOP.

b) Receives air defense-relevant information from the ADA battalion.

(1) Additional mission guidance.

(2) Air threat intelligence.

(3) ADWs, ADWCS, and LADW.

(4) Other air defense-relevant information as provided in the battalion TSOP.

c) Receives information and reports from subordinate elements.

(1) Tactical situation.

(2) Personnel status.

(3) Equipment status.

(4) Supply status.

(5) Other information as required in the battery TSOP.

d) Processes and evaluates information.

(1) Uses FAADS C3I presentation boxes and/or EO and FO map and status boards to display the following information: [STP 44-14II-MQS, Task 01-0401.31-0002]

(a) Tactical situation.

(b) Airspace coordination orders, graphics/overlays, and intelligence information to include third dimension (air) IPB.

(c) Personnel status.

(d) Maintenance and logistical status.

(e) NBC alerts.

(f) Air defense weapon and sensor status and locations.

(g) ADW, ADWCS, and LADW.

(2) Reviews information for required actions during planning, preparation, and execution phases.

e) Communicates information.

(1) Provides information and reports to the brigade and the ADA battalion as needed and as required by TSOPs.

(2) Coordinates information with the brigade staff as part of the integrated brigade TOC.

(3) Provides all relevant air defense and ground tactical information to subordinate units.

c. Battery elements prepare for combat. [FM 44-177-30-MTP, Task 44-2-2219]

1) First line leaders conduct pre-combat checks in accordance with priorities of work.

2) Crews upload ammunition and supplies.

3) Platoon leaders and platoon sergeants establish resupply procedures with supporting units.

4) The battery establishes a maintenance point for organic vehicles.

5) Leaders account for all assigned personnel.

6) Leaders brief all personnel on the situation and update them as the situation changes.

7) Personnel conduct appropriate measures to maintain OPSEC.

8) Leaders employ cover and concealment techniques for personnel and equipment and continue to construct and reinforce protective positions for the CP and weapons.

9) The XO and platoon leaders coordinate with the artillery fire support element for preplanned protective and supporting fires.

10) First-line leaders monitor communications nets.

11) First-line leaders initiate sleep and rest cycles as the situation permits.

12) Leaders review TSOPs.
13) Leaders conduct rehearsals.

14) Crews perform equipment maintenance as needed.

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

a. The battery TOC continues as an integrated component of the brigade TOC and maintains established communications. [ARTEP 44-177-30-MTP; AN]

f. The ADA battery commander/ADALO coordinates land space management and unit movement requirements with the brigade XO. [AN]

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

a. Brigade units prepare for air defense operations. [FM 44-8]

1) Employ passive air defense measures.

a) Attack avoidance measures.

(1) Concealment.

(2) Camouflage.

b) Damage limiting measures.

(1) Dispersion of units and weapon systems.

(2) Protective positions.

(3) Use of cover.

2) Rehearse active air defense measures during unit rehearsals.

a) Creation of volume of fire using all combined arms direct-fire weapons possible.

b) Selection of aim point.

(1) Rotary wing aircraft.

(a) Crossing - ½ football field in front of nose.

(b) Hovering or directly at you - slightly above aircraft body.

(2) Fixed wing aircraft.

(a) Crossing - 2 football fields in front of nose.

(b) Overhead - 2 football fields in front of nose.

(c) Directly at you - slightly above aircraft nose.

c) Designation of air guards.

d) Designation of visual and audible alarms. [FM 44-8]

(1) Red squares (with outline lit at night).

(2) Unbroken warbling siren for 1 minute.

(3) Succession of long blasts on vehicle horns, whistles, or other wind instruments in a ratio of 3 to 1 (3 seconds on and 1 second off).

(4) Vocal "air attack" or corresponding local ADW term.

b. The ADA battery continues air defense in support of the brigade and concurrently prepares for conducting air defense operations to support the new mission. [AN; FN-NTC OCs]

1) The ADA battery conducts supply and maintenance operations.

a) DS ADA platoons coordinate with their supported unit for supply and maintenance or with the ADA battery as applicable, if performing a GS mission.

(1) Coordinate with the TF support platoon for CL IV and V.

(2) Coordinate with the TF battalion S4 for CL II, III, VI, and VII.

(3) Coordinate with the TF battalion maintenance officer for CL IX and recovery.

(4) Coordinate with the TF battalion HHC support platoon leader for CL I.

(5) Coordinate with the TF battalion aid station for CL VIII.

b) The battery headquarters coordinates and conducts supply and maintenance operations for headquarters and GS ADA elements.

(1) The battery commander/battery XO coordinates with the brigade FSB for CL II, III, IV, VI, VIII, IX.

(2) The battery XO coordinates with the brigade S4 for CL V and VII.

(3) The battery XO/1SG coordinates with the brigade HHC 1SG for CL I.

c) The battery XO coordinates with the ADA battalion S4 or as necessary with the division main support battalion for CL IX for Avenger systems, if required.

2) Subordinate ADA units coordinate operational and sustainment requirements with their supported units. [AN]

a) Platoon/section leaders participate in the supported unit planning process.

b) Platoon/section leaders provide reports as required by the supported unit TSOPs, e.g., personnel strength and information to the supported unit S1.

c) Platoon/section leaders coordinate with respective TF S3s to ensure that the supported unit includes ADA units in movement orders.

3) The ADA battery conducts OPSEC. [AN]

a) Platoon leaders coordinate, establish, and confirm OPSEC requirements with supported units.

b) Battery leaders confirm to the battery commander their understanding of OPSEC requirements and their accomplishment of OPSEC briefs to subordinate personnel.

c) Platoons perform OPSEC measures and provide local security.

4) The ADA battery commander provides command presence. [AN]

a) The ADA battery commander visits key locations.

(1) Inspects preparations.

(2) Encourages soldiers.

(3) Makes immediate spot corrections as necessary.

(4) Recognizes achievement.

b) The ADA battery commander keeps in constant communication with the CP and subordinate leaders.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

a. Brigade CPs and air defense battery TOC receive air defense information. [AN]

1) Division intelligence summaries and SPOTREPs.

2) Brigade subordinate unit SITREPs.

3) ADA battery TOC updates to include continual forward area air defense command, control, communications, and intelligence air picture of brigade.

4) Early warning net broadcasts.

5) Required adjustments to the brigade OPORD based on rehearsals.

b. Brigade CPs assess impact of air defense information on the brigade OPORD. [AN]

1) The brigade S3, in conjunction with the ADALO, reviews input and develops changes to the plan and makes applicable recommendations to the brigade commander.

2) The brigade commander directs changes to the OPORD if necessary.

c. Brigade CPs direct actions and communicate air defense information: [FM 44-64; AN]

1) Issue a FRAGO (if applicable) and refine brigade OPORD products.

2) Issue changes and update status to ADWs and ADWCS.

3) Rebroadcast early warning information and messages.

d. Brigade subordinate units receive and respond to air defense information. [FM 44-64; AN]

1) Modify plans based on brigade FRAGOs and the refined brigade OPORD.

2) Retransmit changes to ADWs and ADWCS.

3) Rebroadcast early warning information and messages.

e. The ADA battery CP and the ADA battery commander manage and assess air defense information and maintain C3. [ARTEP 44-177-30-MTP, Task 44-4-2203]

1) The ADA battery receives information from:

a) Brigade.

b) ADA battalion.

c) Subordinate units.

2) The ADA battery commander evaluates information for: [ARTEP 71-3-MTP, Task 71-3-6001/1]

a) Changes to guidance, direction, and information.

b) Desired brigade endstate with what is possible based on the current ADA situation and trends.

c) Information which confirms or refutes IPB and may affect achieving the brigade commander's intent.

d) Answers to intelligence queries about enemy air capabilities.

e) Changes to the friendly air situation.

f) Adjustments to subordinate unit operations.

g) Changes to locations and air defense coverage by divisional assets.

3) The CP maintains air defense products:

a) IPB of third dimension.

b) Air defense graphics with unit locations.

c) ADW/ADWCS/LADW.

d) CP personnel maintain a journal of events. [ARTEP 44-177-30-MTP, Task 44-4-2203]

4) The ADA battery communicates information:

a) The CP provides reports as required by brigade and ADA battalion TSOPs.

b) The CP disseminates information and FRAGOs (if applicable) to subordinate units. [ARTEP 44-177-30-MTP, Task 44-4-2203]

Outcome 4

Bde assets attack and defeat enemy air without hindering or restricting friendly air activity.

Task Elements

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30 MTP]

b. The battery commander positions subordinate units to perform active air defense for the brigade during planning. [ARTEP 44-177-30-MTP, Task 44-4-2222]

1) The battery commander assigns air defense missions for the subordinate units.

a) The battery provides protection of brigade assets in accordance with brigade priorities.

b) Air defense coverage is coordinated with adjacent air defense elements.

c) Early warning sensors are positioned.

2) ADA platoon/section leaders establish coverage within their established sectors.

3) ADA fire units establish positions and provide air defense.

a) Monitor early warning and section/platoon command nets.

b) Prepare hasty positions.

c) Provide coverage and respond to enemy air threat in accordance with current ADW, LADW, and ADWCS.

d) Continue to prepare for further missions.

(1) Complete ammunition upload.

(2) Verify the load plan and equipment availability.

(3) Conduct preventive maintenance checks and services of equipment.

(4) Anticipate further guidance.

13. **The air defense artillery battery commander plans for conducting air defense operations.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 101-5; FM 71-123]

d. The ADA battery commander creates a decision support template (DST) in developing an initial plan. [ARTEP 44-177-30-MTP, Task 44-4-2201/4 FM 44-64]

3) The ADA battery commander makes a tentative plan that:

f) Directs actions to minimize identified risks to troops and equipment. [ARTEP 44-177-30-MTP, Task 71-2-C326]

(4) Safety procedures are enforced at all levels.

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

b. The ADA battery continues air defense in support of the brigade and concurrently prepares for conducting air defense operations to support the new mission. [AN; FN-NTC OCs]

1) The ADA battery conducts supply and maintenance operations.

a) DS ADA platoons coordinate with their supported unit for supply and maintenance or with the ADA battery as applicable, if performing a GS mission.

(1) Coordinate with the TF support platoon for CL IV and V.

(2) Coordinate with the TF battalion S4 for CL II, III, VI, and VII.

(3) Coordinate with the TF battalion maintenance officer for CL IX and recovery.

(4) Coordinate with the TF battalion HHC support platoon leader for CL I.

(5) Coordinate with the TF battalion aid station for CL VIII.

b) The battery headquarters coordinates and conducts supply and maintenance operations for headquarters and GS ADA elements.

(1) The battery commander/battery XO coordinates with the brigade FSB for CL II, III, IV, VI, VIII, IX.

(2) The battery XO coordinates with the brigade S4 for CL V and VII.

(3) The battery XO/1SG coordinates with the brigade HHC 1SG for CL I.

c) The battery XO coordinates with the ADA battalion S4 or as necessary with the division main support battalion for CL IX for Avenger systems, if required.

2) Subordinate ADA units coordinate operational and sustainment requirements with their supported units. [AN]

a) Platoon/section leaders participate in the supported unit planning process.

b) Platoon/section leaders provide reports as required by the supported unit TSOPs, e.g., personnel strength and information to the supported unit S1.

c) Platoon/section leaders coordinate with respective TF S3s to ensure that the supported unit includes ADA units in movement orders.

3) The ADA battery conducts OPSEC. [AN]

a) Platoon leaders coordinate, establish, and confirm OPSEC requirements with supported units.

b) Battery leaders confirm to the battery commander their understanding of OPSEC requirements and their accomplishment of OPSEC briefs to subordinate personnel.

c) Platoons perform OPSEC measures and provide local security.

4) The ADA battery commander provides command presence. [AN]

a) The ADA battery commander visits key locations.

(1) Inspects preparations.

(2) Encourages soldiers.

(3) Makes immediate spot corrections as necessary.

(4) Recognizes achievement.

b) The ADA battery commander keeps in constant communication with the CP and subordinate leaders.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

a. Brigade CPs and air defense battery TOC receive air defense information. [AN]

1) Division intelligence summaries and SPOTREPs.

2) Brigade subordinate unit SITREPs.

3) ADA battery TOC updates to include continual forward area air defense command, control, communications, and intelligence air picture of brigade.

4) Early warning net broadcasts.

5) Required adjustments to the brigade OPORD based on rehearsals.

b. Brigade CPs assess impact of air defense information on the brigade OPORD. [AN]

1) The brigade S3, in conjunction with the ADALO, reviews input and develops changes to the plan and makes applicable recommendations to the brigade commander.

2) The brigade commander directs changes to the OPORD if necessary.

c. Brigade CPs direct actions and communicate air defense information: [FM 44-64; AN]

1) Issue a FRAGO (if applicable) and refine brigade OPORD products.

2) Issue changes and update status to ADWs and ADWCS.

3) Rebroadcast early warning information and messages.

d. Brigade subordinate units receive and respond to air defense information. [FM 44-64; AN]

1) Modify plans based on brigade FRAGOs and the refined brigade OPORD.

2) Retransmit changes to ADWs and ADWCS.

3) Rebroadcast early warning information and messages.

e. The ADA battery CP and the ADA battery commander manage and assess air defense information and maintain C3. [ARTEP 44-177-30-MTP, Task 44-4-2203]

1) The ADA battery receives information from:

a) Brigade.

b) ADA battalion.

c) Subordinate units.

2) The ADA battery commander evaluates information for: [ARTEP 71-3-MTP, Task 71-3-6001/1]

a) Changes to guidance, direction, and information.

b) Desired brigade endstate with what is possible based on the current ADA situation and trends.

c) Information which confirms or refutes IPB and may affect achieving the brigade commander's intent.

d) Answers to intelligence queries about enemy air capabilities.

e) Changes to the friendly air situation.

f) Adjustments to subordinate unit operations.

g) Changes to locations and air defense coverage by divisional assets.

3) The CP maintains air defense products:

a) IPB of third dimension.

b) Air defense graphics with unit locations.

c) ADW/ADWCS/LADW.

d) CP personnel maintain a journal of events. [ARTEP 44-177-30-MTP, Task 44-4-2203]

4) The ADA battery communicates information:

a) The CP provides reports as required by brigade and ADA battalion TSOPs.

b) The CP disseminates information and FRAGOs (if applicable) to subordinate units. [ARTEP 44-177-30-MTP, Task 44-4-2203]

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

a. The battery commander directs and leads subordinate forces. [FM 101-5, Chap 1, 4; FM 71-3, Chap 3; Battle Command Techniques and Procedures, Chap 1-4; Battle Command, pp. 10-13, 32-37; ST 101-5; FM 71-3, Chap 3; FM 101-5, Chap

1; Battle Command Techniques and Procedures, Chap 1, 2; ARTEP 44-177-30-MTP]

1) The battery commander directs subordinate units by: [AN]

   a) Ensuring that subordinate leaders have a clear understanding of his concept and intent.

   b) Positioning himself where he can see portions of the battlefield critical to air defense and can provide command and control to subordinate elements.

   c) Directing the execution of the battle:

      (1) Intervening when and where necessary.

      (2) Ensuring continuous execution.

   d) Maintaining communication on:

      (1) Brigade command net.

      (2) Battery command net.

2) The ADA battery commander exercises leadership during the execution of the battle by: [FM 101-5, Chap 1, 4; FM 71-3, Chap 3; Battle Command Techniques and Procedures, Chap 1-4; Battle Command, pp. 10-13, 32-37; ST 101-5; FM 71-3, Chap 3; FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chaps 1, 2]

   a) Being professionally competent.

   b) Inspiring soldiers with the will to win.

   c) Sharing the hardships and dangers of his soldiers.

   d) Demonstrating both mental and physical stamina.

   e) Displaying physical and moral courage (making the difficult choices and decisions).

   f) Issuing timely, clear, and concise guidance and orders to provide the battery subordinate leaders with purpose, direction, and motivation.

g) Maintaining his perspective and focus on the battery mission, regardless of the turmoil surrounding him.

h) Demonstrating flexibility to quickly adjust to rapidly changing situations to accomplish the mission.

i) Visualizing and thinking in dimensions of time and space as to the consequences of actions.

j) Visualizing follow-on battery missions.

k) Providing subordinate leaders with a vision of future operations.

l) Establishing and reinforcing an attitude of teamwork throughout the battery.

m) Fostering and encouraging initiative in subordinate leaders.

n) Delegating authority whenever appropriate.

o) Providing accurate, objective reports to the brigade commander.

p) Getting needed rest.

3) The ADA battery commander maintains unit discipline and morale by: [FM 101-5, Chap 1; Battle Command Techniques and Procedures, Chap 4; Battle Command, pp. 10-13]

a) Keeping the soldiers informed of the current situation.

b) Making personal contact with soldiers.

c) Reassuring subordinates in a calm manner.

d) Ensuring that soldiers have the opportunity to rest, eat, and otherwise refit as conditions permit.

e) Acting decisively.

f) Giving precise, simple, and easy-to-understand orders.

g) Checking to see that his orders are carried out.

h) Ensuring that brigade subordinate leaders and other supporting elements cross-talk on the battery command nets to:

(1) Coordinate actions and activities.

(2) Exchange information.

(3) Assist each other as possible.

(4) Integrate and synchronize activities.

(5) Prevent fratricide.

(6) Keep everyone updated on the current situation.

(7) Allow the battery commander and the battery TOC to anticipate upcoming requirements.

i) Observing subordinate leaders for indications of degradation in performance.

j) Monitoring himself and the subordinate leaders for degradation of leadership ability based upon physical and/or mental stress or exhaustion:

(1) Self monitoring of own physical and mental state.

(2) The battery XO/ADALO monitors the battery commander's condition and recommends rest periods.

(3) Ensuring that subordinate leaders have and execute a rest schedule for themselves and their soldiers.

k) Ensuring that CSS operations that contribute to morale are conducted as conditions permit.

l) Recognizing unit and individual achievement and performance.

m) Using the battery 1SG's assistance in maintenance of unit discipline and morale.

b. The ADA battery commander maintains situational awareness. [TRADOC Pam 11-9, Chap 7 and App D; FN]

1) The ADA battery commander continuously updates his estimate based on his assessment of new information:

a) Orders and FRAGOs from the brigade.

b) Changes to mission, enemy, terrain, troops, and time available (METT-T).

c) Information about CAS, Army aviation, and UAV activity.

2) The ADA battery commander projects the outcome of the current battle based on his evaluation of the current plan and the overall situation.

3) The ADA battery commander adheres to the current plan if there are no significant changes to METT-T.

c. The ADA battery commander conducts hasty planning to develop and issue a FRAGO directing changes to the battery plan when changes to METT-T render the current plan inappropriate. [FN-NTC OCs]

1) The ADA battery commander/battery CP issues a WARNO to alert subordinate elements when the plan changes.

2) The ADA battery commander conducts a hasty planning process.

3) The ADA battery commander issues a FRAGO with changes.

4) Subordinate elements, the brigade main CP, and the ADA battalion CP receive FRAGOs.

17. **The brigade and the air defense artillery battery defend against enemy air attacks.** [FM 71-3; ARTEP 71-2-MTP, Task 7-1-3911; FM 44-64; ARTEP 44-177-30-MTP]

a. The brigade, brigade subordinate units, and the ADA battery receive and disseminate changes to ADW/LADW and ADWCS from division.

b. The brigade, brigade subordinate units, and the ADA battery receive early warning. [ARTEP 44-177-30-MTP, Task 44-5-2232]

1) The brigade TOC and the battery CP receive early warning from the division early warning net.

2) Other brigade units receive an early warning over the brigade command net.

c. The brigade, brigade subordinate units, and the ADA battery respond to an early warning message. [FM 71-3; ARTEP 44-177-30-MTP]

1) The brigade TOC rebroadcasts the early warning message over the brigade command net.

2) Other brigade units rebroadcast the early warning over their command nets or other units nets as stated in respective TSOP.

3) The ADA battery CP rebroadcasts the early warning over the battery command net.

4) Air defense systems prepare to engage enemy aircraft. [ARTEP 44-177-30-MTP]

5) Affected brigade combat systems (e.g., Bradley Fighting Vehicles) prepare to use CAFAD to engage aircraft. [FM 71-3, pp. 2-7; FM 44-8]

6) Other affected units disperse and employ passive air defense measures. [ARTEP 44-177-30-MTP, Task 44-2-C307]

d. Brigade elements engage enemy aircraft or related activities (e.g., UAV ground control stations). [FM 44-64; ARTEP 44-177-10-MTP]

1) ADA battery direct fires.

2) Indirect fires (CAFAD).

3) Non ADA direct fires (CAFAD, SAFAD).

e. Aircraft are engaged when in range of other brigade weapon systems. [ARTEP 71-2-MTP, Task 7-1-3911; FM 44-8]

f. The ADA battery CP alerts adjacent air defense units of the air threat.

g. ADA battery elements provide after-action engagement reports.

h. ADA battery elements provide battlefield damage assessments.

i. ADA battery elements execute actions to reengage enemy air and sustain air defense operations.

18. **The air defense artillery battery maintains continuous operations.** [FM 44-64; ARTEP 44-177-30-MTP]

a. The ADA battery supports brigade synchronization by maintaining communications during brigade operations. [ARTEP 44-177-30-MTP; ARTEP 71-3-MTP]

1) The battery CP continues to maintain C3 and disseminate information throughout the battle on established nets to include post engagement reports as well as the operational status of personnel and equipment.

2) The battery reestablishes C3 operations in the event of CP loss or destruction.

a) The battery ALOC continuously monitors the battle:

(1) Maintains communications on the following nets:

(a) Battery command.

(b) Early warning.

(c) Brigade A/L.

(2) Continuously updates operational graphics and the air IPB.

(3) Maintains up-to-date operational status of subordinate units.

b) The battery ALOC assumes C3 of the battery if the TOC is lost or destroyed.

3) Succession of command is implemented as stated in the battery OPORD or TSOP.

b. Risks and safety hazards are continuously assessed and mitigated.

c. The ADA battery provides air defense during brigade consolidation and reorganization: [ARTEP 44-177-30-MTP, Task 44-4-2203]

1) Remaining assets:

a) Positioned to cover major air avenues of approach, or

b) Integrated into the maneuver elements.

2) Non-combat effective assets are removed from action and moved to the appropriate processing areas.

d. The ADA battery reacts to NBC hazards. [ARTEP 44-177-30-MTP]

1) The battery headquarters conducts a chemical survey. [ARTEP 44-177-30-MTP, 44-5-R310]

2) The battery conducts deliberate decontamination. [ARTEP 44-177-30-MTP, 03-2-C312]

3) The battery crosses a chemically contaminated area. [ARTEP 44-177-30-MTP, 03-2-C313]

4) The battery crosses a radiologically contaminated area. [ARTEP 44-177-30-MTP, 44-2-R208]

5) The battery performs hasty decontamination. [ARTEP 44-177-30-MTP, 03-2-C311]

6) The battery prepares for an enemy chemical attack. [ARTEP 44-177-30-MTP, 03-2-C202]

7) The battery prepares for an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C206]

8) The battery responds to an enemy chemical attack. [ARTEP 44-177-30-MTP, 03-2-C334]

9) The battery responds to the initial effects of an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C329]

10) The battery responds to the residual effects of an enemy nuclear attack. [ARTEP 44-177-30-MTP, 03-2-C328]

e. The ADA battery commander reorganizes combat effective assets to support follow-on missions. [STP 44-14II-MQS, Task 01-0401.31-0005]

1) Conducts CSS operations:

a) Collects battle damage assessment (BDA) from subordinate elements and submits BDA reports to brigade. [ARTEP 44-177-30-MTP, Task 44-4-2211]

b) Prioritizes personnel and equipment replacement.

c) Authorizes controlled substitution of repair parts for weapons systems and equipment regeneration.

d) Supervises maintenance operations and repair and/or recovery of disabled equipment.

e) Requests and executes resupply as necessary. [ARTEP 44-177-30-MTP, Tasks 44-4-2217, 44-4-2218]

f) Supervises care and evacuation of wounded personnel. [ARTEP 44-177-30-MTP, Task 8-2-C316]

g) Conducts graves registration, as required. [ARTEP 44-177-30-MTP, Task 10-5-C318]

h) Supervises the processing of EPWs.

2) Ensures local security for the immediate area.

3) Sends necessary reports per the unit TSOP.

a) Reports status of reorganization and preparedness to continue the mission to brigade CP.

b) Reports status of reorganization and preparedness to continue the mission to ADA battalion CP.

LESSONS LEARNED INTEGRATED INTO TASK LIST

This component identifies the lessons learned extracted from the CALL publications relevant to performing this BF. The lessons learned are organized and listed by the appropriate task in the BF task list, section 7. Where appropriate to address the absence of a task in an ARTEP-MTP, the lessons learned have been structured as tasks and are included in the detailed task list as subtasks. The purpose of the lessons learned component is to provide the user with the most recent tactics, techniques, and procedures (TTP) associated with the performance of the tasks in this BF.

PLANNING TASKS

1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.** [FM 71-3; FM 44-64; ARTEP 44-177-30-MTP]

   LL- Air defense BOS. Allocate and position assets to support established priorities and to facilitate future operations. [CALL CTC Trends, BCTP Perceptions, FY 95]

   LL- Synchronize tactical operations. Ensure that air defense priorities are specific enough to support each phase of ground operations. [CALL CTC Trends, BCTP Perceptions, FY 95]

   LL- Co/Tm/Btry conduct of pre-combat inspections and checks on unit equipment. Commanders and leaders are not issuing specific guidance during warning orders and OPORDs that establish a standard for pre-combat inspections/pre-combat checks (PCI/PCC), and a time of inspection by the chain of command. [CALL CTC Trends, NTC, 1QFY95]

   LL- Air defense BOS. Integrate air defense fires. Integration of AD in the task force Operation is incomplete. Task forces at home station train without a dedicated air defense. AD planning usually falls to an assistant S3, or *it doesn't happen at all.* When an air defense officer is attached for training or a deployment, the relationship is initially weak. The AD officer is not familiar with the unit SOP; he is often overlooked during the staff planning process because of rank, inexperience and unfamiliarity with the unit. Results are incomplete AD plans with major oversights, such as the platoon CSS plan, adequate AD coverage for the task force and general misuse of AD assets. The AD officer's relationship with the task force should begin at home station. The AD officer must be included in all staff and collective training conducted at task force level. This will allow him to build up credibility and familiarity within the task force, and prove himself as a competent staff planner and platoon leader. While this is often difficult to accomplish, the dividends paid during mission planning, preparation, and execution will make the difficulty worthwhile. [CALL CTC Trends, CMTC, 1st & 2nd Quarters, FY95]

   LL- Air defense BOS. Process air targets. Use of directed early warning continues to be a strength at the brigade and battalion level. Air defense officers are proactive in

ensuring rapid and accurate dissemination of early warning throughout the brigade task force. [CALL CTC Trends, JRTC, 4QFY95 and 1QFY96]

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.** [FM 44-64; AN; FN-NTC OCs]

   LL- The battalion and brigade battle staff. Mission received. [CALL Newsletter No. 93-3, Jul 93]

   LL- Duties and responsibilities of TOC personnel. Liaison officer (LNO) operations. [CALL Newsletter No. 95-7, May 95]

3. **The air defense liaison officer conducts mission analysis with the brigade staff.** [FM 71-123; FM 71-3; FM 44-64; ARTEP 44-177-30-MTP; FM 34-130]

   LL- The battalion and brigade battle staff. Mission analysis, restated mission and commander's guidance. [CALL Newsletter No. 93-3, Jul 93]

   LL- Duties and responsibilities of TOC personnel. Liaison officer (LNO) operations. [CALL Newsletter No. 95-7, May 95]

   LL- Synchronize tactical operations. Avoid an over-reliance on complimentary HIMAD coverage. [CALL CTC Trends, BCTP Perceptions, FY 95]

   LL- Air defense BOS. Misuse of ADA assets. Against the advice of ADOs, commanders will insist on placing Stinger teams deep across the forward line of own troops (FLOT) to protect reconnaissance assets. Or, they will direct Stinger gunners ride in the back of infantry M2s to have survivable air defense forward. ADOs must be more articulate in their recommendations. Air defense of deep reconnaissance assets is based on not being detected (OPSEC). It cannot be based on active air defense since a Stinger launch compromises the location. If the METT-T requires Stingers in the back of infantry M2s, then the M2 must come under ADA command and control. Otherwise, the Stinger is trapped in an M2 without early warning and is not allowed to dismount when needed. [CALL CTC Trends, NTC, 4QFY94]

   LL- Ineffective task organization (air defense). Air defense asset task organization often developed and executed without proper analysis. Task organize air defense assets based on IPB, the supported commanders' air defense priorities and the scheme of maneuver, Refer to FM 44-100, U.S. Army Air Defense Operations. [CALL CTC Trends, JRTC, 4QFY95, and 1QFY96]

   LL- Synchronization during the deliberate planning process (air defense). Air defense personnel are routinely not present during key synchronization events. Air defense mission analysis and OPORD preparation are often conducted in isolation, with the end product submitted to the S3. The ADO must synchronize his planning efforts with the brigade and proactively discuss air defense effort with the brigade S3 and commander

to ensure the brigade maneuver operations are not degraded by enemy operations. [CALL CTC Trends, JRTC, 4QFY95 and 1QFY 96]

4. **The air defense liaison officer provides air defense information to the brigade S3 input for the brigade warning order.** [FM 44-64; AN]

   LL- The battalion and brigade battle staff. Information to commander and staff. [CALL Newsletter No. 93-3, Jul 93]

   LL- Duties and responsibilities of TOC personnel. LNO operations. [CALL Newsletter No. 95-7, May 95]

5. **The air defense liaison officer and the air defense artillery battery commander receive initial planning guidance from the brigade commander.** [FM 101-5, Chap 4, pp. 4-15; FM 44-64]

   LL- The battalion and brigade battle staff. Mission analysis, restated mission and commander's guidance. [CALL Newsletter No. 93-3, Jul 93]

6. **The air defense liaison officer prepares paragraphs 1 and 2 of the air defense estimate.** [FM 101-5, p. C-12; ARTEP 71-3-MTP, Task 71-3-60001/2; FM 44-100, App B]

   LL- The battalion and brigade battle staff. Information to commander and staff. [CALL Newsletter No. 93-3, Jul 93]

   LL- Brigade task force logisticians must understand the expenditure rates of Vulcan 20mm and Stinger weapons systems. Because these weapons systems are critical to defend the force and their munitions expenditures are high, they must be pushed forward to the supported unit's trains. When there is no air defense liaison at the forward support battalion's ammunition transfer point, the likelihood of a continual flow of air defense munitions to the battalion task force trains is reduced. Air defender unfamiliarity with the supported unit's ammunition resupply procedures has also been a contributing factor in units exhausting Stinger/20mm ammunition supplies. The ADOs must become familiar with the RSRs/CSRs and must establish an RSR for the operation. The failure to establish an RSR often causes units to deplete their basic load and initiate emergency resupply action to maintain combat effectiveness. [CALL CTC Bulletin No. 94-1, Mar 94]

7. **The air defense liaison officer participates in the course of action development.** [ARTEP 44-177-30-MTP, ARTEP 71-3-MTP; FM 44-64]

LL- The battalion and brigade battle staff. Course-of-action development and analysis. [CALL Newsletter No. 93-3, Jul 93]

LL- Synchronization during the deliberate planning process (air defense). Air defense personnel are routinely not present during key synchronization events. Air defense mission analysis and OPORD preparation are often conducted in isolation, with the end product submitted to the S3. The ADO must synchronize his planning efforts with the brigade and proactively discuss air defense effort with the brigade S3 and commander to ensure the brigade maneuver operations are not degraded by enemy operations. [CALL CTC Trends, JRTC, 4QFY95 and 1QFY 96]

8. **The air defense liaison officer participates in the brigade course of action analysis.** [FM 101-5, p. 4-28; FM 44-64; ARTEP 44-177-30-MTP]

LL- The battalion and brigade battle staff. Course-of-action development and analysis. [CALL Newsletter No. 93-3, Jul 93]

9. **The air defense liaison officer compares courses of action with the brigade staff.** [ARTEP 71-3-MTP, Task 71-3-3001/3a; FM 101-5, pp. 4-32]

LL- The battalion and brigade battle staff. Course-of-action development and analysis. [CALL Newsletter No. 93-3, Jul 93]

10. **The air defense liaison officer receives the course of action decision from the brigade commander.** [ARTEP 71-3-MTP, Task 71-3-3002]

LL- Air defense BOS. Misuse of ADA assets. Against the advice of ADOs, commanders will insist on placing Stinger teams deep across the FLOT to protect reconnaissance assets. Or, they will direct Stinger gunners ride in the back of infantry M2s to have survivable air defense forward. ADOs must be more articulate in their recommendations. Air defense of deep reconnaissance assets is based on not being detected (OPSEC). It cannot be based on active air defense since a Stinger launch compromises the location. If the METT-T requires Stingers in the back of infantry M2s, then the M2 must come under ADA command and control. Otherwise, the Stinger is trapped in an M2 without early warning and is not allowed to dismount when needed. [CALL CTC Trends, NTC, 4QFY94]

LL- The battalion and brigade battle staff. Issue plan/order/FRAGO. [CALL Newsletter No. 93-3, Jul 93]

11. **The air defense liaison officer and the air defense artillery battery commander prepare the air defense applicable sections of the brigade order.** [ARTEP 71-3-MTP, Task 71-3-6001/3; FM 44-64]

LL- The battalion and brigade battle staff. Issue plan/order/FRAGO. [CALL Newsletter No. 93-3, Jul 93]

12. **The air defense liaison officer/air defense artillery battery commander participates in the brigade orders brief.** [ARTEP 71-3-MTP, Task 71-3-3002, FM 101-5, Chap 4; FM 44-64]

LL- The battalion and brigade battle staff. Issue plan/order/FRAGO. [CALL Newsletter No. 93-3, Jul 93]

13. **The air defense artillery battery commander and the air defense artillery battery plan for conducting air defense operations.** [FM 71-3; ; FM 44-64; ARTEP 44-177-30-MTP, FM 101-5; FM 71-123]

LL- Air defense BOS. Integrate air defense fires. Integration of AD in the task force Operation is incomplete. Task forces at home station train without a dedicated air defense. AD planning usually falls to an assistant S3, or it doesn't happen at all. When an air defense officer is attached for training or a deployment, the relationship is initially weak. The AD officer is not familiar with the unit SOP; he is often overlooked during the staff planning process because of rank, inexperience and unfamiliarity with the unit. Results are incomplete AD plans with major oversights, such as the platoon CSS plan, adequate AD coverage for the task force and general misuse of AD assets. The AD officer's relationship with the task force should begin at home station. The AD officer must be included in all staff and collective training conducted at task force level. This will allow him to build up credibility and familiarity within the task force, and prove himself as a competent staff planner and platoon leader. While this is often difficult to accomplish, the dividends paid during mission planning, preparation, and execution will make the difficulty worthwhile. [CALL CTC Trends, CMTC, 1st & 2nd Quarters, FY95]

LL- Ineffective task organization (air defense). Air defense asset task organization often developed and executed without proper analysis. Task organize air defense assets based on IPB, the supported commanders' air defense priorities and the scheme of maneuver, Refer to FM 44-100, U.S. Army Air Defense Operations. [CALL CTC Trends, JRTC, 4QFY95, and 1QFY96]

PREPARATION TASKS

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.** [ARTEP 44-177-30-MTP; FM 71-3; FM 44-64]

LL- Emphasize to each unit that, when in position, units must disperse very widely making a less-than-lucrative target. When moving in column and under air attack, units must move at least 40 to 50 meters off the road for the aircraft normally have nose guns trained on the road with wing armament adjusted to fire into the ditches/shoulders on both sides of the road. A vehicle on the road or on the side of the road will die. [Newsletter No. 90-8 Special Edition, Sept 90, "Winning In the Desert II," Tactics, Techniques, and Procedures for Maneuver Commanders]

LL- Aerial intelligence preparation of the battlefield (IPB) is an essential tool for the air defense officer (ADO). It allows him to visualize the battle and to position air defense fire units to kill enemy aircraft. When ADOs conduct effective air IPB, they interdict enemy air operations. ADOs frequently fail to update the initial aerial IPB based on size, activity, location, unit, time, and equipment (SALUTE) reports. ADOs must plot and analyze hostile aircraft tracks to validate the initial aerial IPB and serve as the basis for future mission planning. [CALL CTC Bulletin No. 93-4, Jul 93]

LL- Co/Tm/Btry conduct of pre-combat inspections and checks on unit equipment. Commanders and leaders are not issuing specific guidance during warning orders and OPORDs that establish a standard for PCI/pre-combat checks (PCCs), and a time of inspection by the chain of command. [CALL CTC Trends, NTC, 1QFY95]

LL- The battle Before: A Rehearsal, A Senior Observer-Controller's Perspective. Principles of a Rehearsal. [CALL CTC Quarterly Bulletin, 4th Qtr, FY 95, No. 95-11, Sep 95]

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.** [ARTEP 71-3-MTP, Task 71-3-6001/1; FM 44-64]

LL- Air defense BOS. Process air targets. Use of directed early warning continues to be a strength the brigade and battalion level. Air defense officers are proactive in ensuring rapid and accurate dissemination of early warning throughout the brigade task force. [CALL CTC Trends, JRTC, 4QFY95, and 1QFY96]

EXECUTION TASKS

16. **The air defense artillery battery commander provides direction and leadership to the air defense artillery battery.** [FM 44-64; AN]

LL- Command and control. Provide command presence. [CALL CTC Trends, JRTC, 4QFY95, and 1QFY96]

17. **The brigade and the air defense artillery battery defend against enemy air attacks.** [FM 71-3; ARTEP 71-2-MTP, Task 7-1-3911; FM 44-64; ARTEP 44-177-30-MTP]

LL- Smaller weapons systems are rarely employed against fixed- or rotary-wing aircraft at CMTC because warnings of imminent air attacks receive limited dissemination. Also, our soldiers have little confidence that their small arms fire will have an effect on the attacking aircraft, so they don't engage. Normally, rotary aircraft kills at the CMTC are a result of engagements by the M1s and M2s. Sometimes, they are directed not to engage because their leaders have been trained that passive air defense is often times the best defense, not realizing that METT-T must be applied to this decision. Non-air defense units are unaware or untrained on the proper methods for engaging hostile aircraft. FM 44-8, small unit self-against air attack, provides procedures and techniques which, if followed, will succeed against hostile aircraft. [CALL CTC Bulletin No. 93-4, Jul 93]

LL- Process air targets. Early warning dissemination and reaction to early warning. In too many cases early warning was not pushed through the TF/squadron via the command net. When early warning goes out on the command net and is stressed by key leaders, all arms for air defense (AAFAD) improved. [CALL CTC Trends, NTC, 1QFY95]

18. **The air defense artillery battery maintains continuous operations.** [FM 44-64; ARTEP 44-177-30-MTP]

LL- Battle command training program, air BOS. Allocate and position assets to support established priorities and to facilitate future operations. [CALL CTC Trends, BCTP Perceptions, FY 95]

LL- Air defense BOS. Process air targets. Use of directed early warning continues to be a strength at the brigade and battalion level. Air defense officers are proactive in ensuring rapid and accurate dissemination of early warning throughout the brigade task force. [CALL CTC Trends, JRTC, 4QFY95, and 1QFY96]

GATE TASKS

This component identifies critical individual or collective tasks upon which each BF task identified in the task list is dependent. In order to ensure efficient and safe training of the major task, the participants should have achieved a level of proficiency or understanding in these gate tasks.

PLANNING TASKS	INDIVIDUAL/COLLECTIVE PROFICIENCIES
1. **The air defense artillery battery conducts operations in support of the brigade as the brigade plans for the battle.**	**ADA Btry Cdr** [STP 44-14II-MQS, 01-0401.32-0001] - Plan SHORAD/forward area air defense system (FAADS) command, control, communications, and intelligence (C3I) employment. [STP 44-14II-MQS, 01-0401.32-0003] - Provide SHORAD air defense. **ADA Btry XO** [STP 44-14II-MQS, 01-0401.31-0002] - Establish an ADA TOC. **Brigade ADALO** [STP 44-14II-MQS, 01-0401.31-0002] - Establish an ADA TOC. [STP 44-14II-MQS, 01-0401.31-0019] - Perform as ADALO. **ADA TOC NCO** [STP 44-14II-MQS, 01-0401.31-0002] - Establish an ADA TOC. **ADA Platoon/Section Leaders** [STP 44-14II-MQS, 01-0401.32-0001] - Supervise emplacement of SHORAD weapons. **Brigade HHC Cdr** [STP 21-II-MQS, 01-7300.75-0500] - Plan convoy operations. **Brigade HHC 1SG**

[STP 10-76X24-SM-TG, 101-520-4104]
- Prepare the schedule of field ration issues.

Brigade S3 SGM
[STP 21-24-SMCT, 113-573-0002]
- Conduct OPSEC procedures.

2. **The air defense liaison officer and air defense artillery battery commander receive an order initiating a new mission from higher headquarters.**

ADA Btry Cdr
[ARTEP 71-2-MTP]
- Analyze tactical mission statement.

ADA Btry XO
[ARTEP 71-2-MTP]
- Analyze tactical mission statement.

Brigade ADALO
[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

[ARTEP 71-2-MTP]
- Analyze tactical mission statement.

3. **The air defense liaison officer conducts mission analysis with the brigade staff.**

Brigade ADALO
[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

[STP 21-II-MQS, 03-9001.13-0001]
- Solve problems using the military problem-solving process.

[STP 44-14II-MQS, 01-0401.31-0013]
- Perform in intelligence preparation of the 3rd dimension battlefield activities.

Brigade S2
[STP 34-35II-MQS, 01-3381.01-5001]
- Direct the intelligence portion of the IPB process.

Brigade S2 Section
[STP 34-96B14-SM-TG, 301-336-2004]
- Supervise preparation of intelligence estimate.

Brigade Cdr
[STP 21-II-MQS, 03-9001.12-0003]
- Communicate effectively as a Cdr or staff

		officer. [STP 21-II-MQS, 01-9007.01-0250] - Brief to inform, persuade, or direct.
4.	**The air defense liaison officer provides air defense information to the brigade S3 as input for the brigade warning order.**	**Brigade ADALO** [STP 44-14II-MQS, 01-0401.31-0019] - Perform as ADALO. [STP 21-II-MQS, 03-9001.12-0003] - Communicate effectively as a Cdr or staff officer. [STP 44-14II-MQS, 01-0401.21-0005] - Develop ADA inputs for combined arms plans, OPORDs, FRAGOs, and WARNOs. **Brigade S3** [STP 21-II-MQS, 01-3303.03-0013] - Prepare battalion combat orders.
5.	**The air defense liaison officer and the air defense artillery battery commander receive initial planning guidance from the brigade commander.**	**Brigade Cdr** [STP 21-II-MQS, 03-9001.12-0003] - Communicate effectively as a Cdr or staff officer. [STP 21-II-MQS, 01-9007.01-0250] - Brief to inform, persuade, or direct. **Brigade ADALO/ADA Btry Cdr** [STP 44-14II-MQS, 01-0401.31-0019] - Perform as ADALO.
6.	**The air defense liaison officer prepares paragraphs 1 and 2 of the air defense estimate.**	**Brigade ADALO** [STP 44-14II-MQS, 01-0401.31-0019] - Perform as ADALO. [STP 44-14II-MQS, 01-0401.21-0005] - Develop ADA inputs for combined arms plans, OPORDs, FRAGOs, and WARNOs.
7.	**The air defense liaison officer participates in the course of action development.**	**Brigade ADALO** [STP 44-14II-MQS, 01-0401.31-0006] - Plan ADA employment to support offensive operations. [STP 44-14II-MQS, 01-0401.31-0008]

- Plan ADA employment to support defensive operations.

[STP 44-14II-MQS, 01-0401.31-0011]
- Design ADA plan for coverage of a critical asset.

[STP 44-14II-MQS, 01-0401.31-0018]
- Direct passive air defense measures.

[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

Brigade Staff
[STP 44-14II-MQS]
- Develop inputs for combined arms plans, OPORDs, FRAGOs, and WARNOs.

[ARTEP 71-3-MTP, 71-3-0001]
- Advise and assist staff on elements of the BOS that support/impact their staff function.

8. **The air defense liaison officer participates in the brigade course of action analysis.**

Brigade ADALO
[STP 44-14II-MQS, 01-0401.31-0006]
- Plan ADA employment to support offensive operations.

[STP 44-14II-MQS, 01-0401.31-0008]
- Plan ADA employment to support defensive operations.

[STP 44-14II-MQS, 01-0401.31-0011]
- Design ADA plan for coverage of a critical asset.

[STP 44-14II-MQS, 01-0401.31-0018]
- Direct passive air defense measures.

[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

Brigade Staff
[STP 44-14II-MQS]
- Develop inputs for combined arms plans, OPORDs, FRAGOs, and WARNOs.

[ARTEP 71-3-MTP, 71-3-0001]
- Advise and assist staff on elements of BOS that support/impact their staff function.

9. **The air defense liaison officer compares courses of action with the brigade staff.**

Brigade ADALO
[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

Brigade Staff
[ARTEP 71-3-MTP, 71-3-0001]
- Advise and assist staff on elements of BOS that support/impact their staff function.

10. **The air defense liaison officer receives the course of action decision from the brigade commander.**

Brigade Cdr
[STP 21-II-MQS, 03-9001.12-0003]
- Communicate effectively as a Cdr or staff officer.

[STP 21-II-MQS, 01-9007.01-0250]
- Brief to inform, persuade, or direct.

Brigade ADALO
[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

ADA Btry Cdr
[ARTEP 71-2-MTP]
- Analyze tactical mission statement.

[STP 44-14II-MQS, 01-0401.31-0006]
- Plan ADA employment to support offensive operations.

[STP 44-14II-MQS, 01-0401.31-0008]
- Plan ADA employment to support defensive operations.

[STP 44-14II-MQS, 01-0401.31-0011]
- Design ADA plan for coverage of a critical asset.

[STP 44-14II-MQS, 01-0401.31-0018]
- Direct passive air defense measures.

Brigade Staff

[ARTEP 71-3-MTP, 71-3-0001]
- Advise and assist staff on elements of BOS that support/impact their staff function.

11. **The air defense liaison officer and the air defense artillery battery commander prepare the air defense relevant sections of the brigade order.**

Brigade ADALO/ ADA Btry Cdr
[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

STP 44-14II-MQS, 01-0401.21-0005]
- Develop ADA inputs for combined arms plans, OPORDs, FRAGOs, and WARNOs.

[ARTEP 71-2-MTP/ARTEP 71-3-MTP]
- Prepare plans/orders/annexes in accordance with FMs 71-2 and 101-5 (7-1-3904(9)/71-3-3002).

Brigade Staff
[ARTEP 71-3-MTP, 71-3-0001]
- Advise and assist staff on elements of BOS that support/impact their staff function.

Brigade S3
[STP 21-II-MQS, 01-3303.03-0013]
- Prepare battalion combat orders.

12. **The air defense liaison officer/air defense artillery battery commander participates in the brigade orders brief.**

Brigade ADALO
[STP 44-14II-MQS, 01-0401.31-0019]
- Perform as ADALO.

[STP 21-II-MQS, 03-9001.12-0003]
- Communicate effectively as a Cdr or staff officer.

[STP 21-II-MQS, 01-9007.01-0250]
- Brief to inform, persuade, or direct.

Brigade S3
[STP 21-II-MQS, 03-9001.12-0003]
- Communicate effectively as a Cdr or staff officer.

[STP 21-II-MQS, 01-9007.01-0250]
- Brief to inform, persuade, or direct.

Brigade Cdr
[STP 21-II-MQS, 03-9001.12-0003]
- Communicate effectively as a Cdr or staff officer.

[STP 21-II-MQS, 01-9007.01-0250]
- Brief to inform, persuade, or direct.

Brigade Staff Officers
[STP 21-II-MQS, 03-9001.12-0003]
- Communicate effectively as a Cdr or staff officer.

[STP 21-II-MQS, 01-9007.01-0250]
- Brief to inform, persuade, or direct.

TF/Supported Bn Cdrs
[ARTEP 71-2-MTP]
- Analyze tactical mission statement.

13. **The air defense artillery battery commander plans for conducting air defense operations.**

ADA Btry Cdr
[ARTEP 71-2-MTP]
- Analyze tactical mission statement.

[STP 44-14II-MQS, 01-0401.31-0006]
- Plan ADA employment to support offensive operations.

[STP 44-14II-MQS, 01-0401.31-0008]
- Plan ADA employment to support defensive operations.

[STP 44-14II-MQS, 01-0401.31-0011]
- Design ADA plan for coverage of a critical asset.

[STP 44-14II-MQS, 01-0401.31-0018]
- Direct passive air defense measures.

[STP 21-II-MQS, 04-3303.02-0014]
- Prepare platoon or company combat orders.

[STP 21-II-MQS, 03-9001.12-0003]

- Communicate effectively as a Cdr or staff officer.

[STP 21-II-MQS, 01-9007.01-0250]
- Brief to inform, persuade, or direct.

ADA Btry XO
[STP 44-14II-MQS, 01-0401.31-0002]
- Establish an ADA TOC.

ADA Btry TOC Personnel
[STP 44-14II-MQS, 01-0401.31-0002]
- Establish an ADA TOC.

ADA Platoon/Section Leaders
[ARTEP 71-2-MTP]
- Analyze tactical mission statement.

[STP 21-II-MQS, 01-9007.01-0250]
- Brief to inform, persuade, or direct.

[STP 21-II-MQS, 03-9001.12-0002]
- Communicate effectively.

PREPARATION TASKS

14. **The brigade and the air defense artillery battery prepare for conducting air defense operations.**

ADA Btry Cdr
[STP 44-14II-MQS, 01-0401.32-0001]
- Plan SHORAD/FAADS C3I employment.

[STP 44-14II-MQS, 01-0401.32-0003]
- Provide SHORAD air defense.

[STP 44-14II-MQS, 01-0401.31-0012]
- Supervise ADA unit maintenance operations.

[STP 44-14II-MQS, 01-0401.31-0007]
- Plan logistics support for ADA units engaged in combat operations.

ADA Btry XO
[STP 44-14II-MQS, 01-0401.31-0012]
- Supervise ADA unit maintenance operations.

Brigade ADALO
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

ADA Btry TOC Personnel
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

[ARTEP 71-3-MTP, 7-1-3904/3036]
- Perform duties in a TOC or A/L CP.

[ARTEP 71-3-MTP, 71-3-2006(2)]
- Prepare operational journals.

ADA Platoon/Section Leaders
[STP 44-14II-MQS, 01-0401.21-0001]
- Advise supported units on active/passive air defense measures.

[STP 44-14II-MQS, 01-0401.31-0007]
- Plan logistics support for ADA units engaged in combat operations.

[STP 21-II-MQS, 04-4966.90-0010]
- Supervise preventative maintenance checks and services.

ADA Btry 1SG
[STP 21-II-MQS, 03-5105.00-0002]
- Direct unit feeding operations.

Other Brigade Subordinate Unit Cdrs
[STP 21-II-MQS, 01-0401.20-0001]
- Direct unit air defense.

15. **The brigade and the air defense artillery battery acquire, evaluate, and communicate air defense information.**

ADA Btry TOC and CP Personnel
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

[ARTEP 71-3-MTP, 7-1-3904/3036]
- Perform duties in a TOC or A/L CP.

[ARTEP 71-3-MTP, 71-3-2006(2)]
- Prepare operational journals.

Brigade S2 and S2 Section
[STP 34-35II-MQS, 01-3381.39-4003]
- Record intelligence and combat information.

[STP 34-25II-MQS, 01-3381.41-5002]
- Direct analysis and dissemination of information.

ADA Btry Cdr
[STP 44-14II-MQS, 01-0401.32-0001]
- Plan SHORAD/FAADS C3I employment.

[STP 44-14II-MQS, 01-0401.32-0003]
- Provide SHORAD air defense.

[STP 21-II-MQS, 01-0401.20-0001]
- Direct unit air defense.

Brigade ADALO
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

[ARTEP 71-3-MTP, 7-1-3904/3036]
- Perform duties in a TOC or A/L CP.

ADA Btry XO
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

[ARTEP 71-3-MTP, 7-1-3904/3036]
- Perform duties in a TOC or A/L CP.

ADA Platoon Leaders
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

EXECUTION TASKS

16. **The air defense artillery battery commander provides direction and leadership to the air defense**

ADA Btry Cdr
[STP 44-14II-MQS, 01-0401.32-0001]
- Plan SHORAD/FAADS C3I employment.

artillery battery.

[STP 44-14II-MQS, 01-0401.32-0003]
- Provide SHORAD air defense.

[STP 21-II-MQS, 01-0401.20-0001]
- Direct unit air defense.

Brigade ADALO/ADA Btry XO
[STP 21-II-MQS, 03-9003.02-0001]
- Manage accident risk in unit operations.

[STP 21-II-MQS, S3-9001.18-0001]
- Manage organizational stress.

ADA Btry 1SG
[STP 21-II-MQS, 03-9001.14-0002]
- Motivate subordinates to accomplish unit missions.

ADA Platoon Leaders/Platoon Sergeants/First Line Leaders
[STP 21-II-MQS, 03-9003.02-0001]
- Manage accident risk in unit operations.

[STP 21-II-MQS, S3-9001.18-0001]
- Manage organizational stress.

[STP 21-II-MQS, 03-9001.14-0002]
- Motivate subordinates to accomplish unit missions.

17. **The brigade and the air defense artillery battery defend against enemy air attacks.**

ADA TOC Personnel
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

[ARTEP 71-3-MTP, 7-1-3904/3036]
- Perform duties in a TOC or A/L CP.

[ARTEP 71-3-MTP, 71-3-2006(2)]
- Prepare operational journals.

[STP 34-25II-MQS, 01-3381.41-5002]
- Direct analysis and dissemination of information.

Brigade TOC Personnel

[STP 34-25II-MQS, 01-3381.41-5002]
- Direct analysis and dissemination of information.

ADA Weapons Crews
[ARTEP 44-117-10-MTP/FM 44-18-1]
- Engage enemy aircraft with Stinger missile.

Brigade Combat Vehicle Crews
[FM 44-8]
- Engage enemy aircraft with vehicle weapons systems and small arms.

18. **The air defense artillery battery maintains continuous operations.**

ADA Btry Cdr
[STP 21-II-MQS, 03-0170.01-1005
- Perform wartime strength accounting.

[STP 21-II-MQS, 01-4965.90-0001]
- Supervise unit maintenance operations.

[STP 44-14II-MQS, 01-0401.31-0005]
- Plan for reorganization of ADA units.

ADA Btry CP Personnel
[STP 44-14II-MQS, 01-0401.21-0018]
- Operate battery/platoon CP.

[ARTEP 71-3-MTP, 7-1-3904/3036]
- Perform duties in a TOC or A/L CP.

[ARTEP 71-3-MTP, 71-3-2006(2)]
- Prepare operational journals.

[STP 21-II-MQS, 03-0170.01-1005]
- Perform wartime strength accounting.

[STP 21-II-MQS, 04-8310.00-1016]
- Request army aeromedical evacuation.

[ARTEP 71-2-MTP, 7-1-3912(8)]
- Assist in and execute plan for medical assistance and evacuation for unit and staff personnel.

[STP 21-II-MQS, 03-4995.90-0010]
- Direct vehicle and equipment recovery

operations.

[STP 21-II-MQS, 03-5104.00-0007]
- Supervise graves registration support.

ADA Btry Personnel
[ARTEP 71-2-MTP, 7-1-3912(8)]
- Assist in and execute plan for medical assistance and evacuation for unit and staff personnel.

[STP 21-II-MQS, 04-8310.00-1016]
- Request army aeromedical evacuation.

ADA Btry XO/Btry Maintenance Chief, Brigade FSB Personnel
[STP 21-II-MQS, 03-4995.90-0010]
- Direct vehicle and equipment recovery operations.

ADA Btry 1SG, Brigade FSB Personnel
[STP 21-II-MQS, 03-5104.00-0007]
- Supervise graves registration support.

Brigade S4, ADA Btry Supply Sergeant
[STP 21-II-MQS, 03-5101.00-0282]
- Direct the storage of unit supplies, weapons, equipment, and ammunition.

Communications Section NCO
[STP 21-II-MQS, 03-4995.90-0010]
- Direct vehicle and equipment recovery operations.

[STP 21-II-MQS, 01-5700.02-001]
- Enforce platoon and company communications security measures.

Btry NBC NCO
[STP 21-II-MQS, 04-5030.00-2006]
- Supervise unit response to a chemical or biological attack.

ADA Platoon Leaders/Platoon Sergeants/First Line Leaders
[STP 21-II-MQS, 04-8310.00-1016]

- Request Army aeromedical evacuation.

REFERENCES

This component identifies the references and sources used by the author to develop the battlefield function (BF) task list. This component provides users with sources for further information as well as a compilation of research resources.

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6-20-50	Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Light), January 1990
34-130	Intelligence Preparation of the Battlefield, July 1994
44-8	Small Unit Self-Defense Against Air Attack, December 1981
44-64	FAAD Battalion and Battery Operations (Draft), April 1995
44-100	Air Defense Operations, June 1995
71-123	Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion/Task Force, and Company Team, 30 September 1992
71-3	The Armored and Mechanized Infantry Brigade, January 1996
101-5	Command and Control for Commander's and Staff (Draft), August 1993

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44-177-30-MTP	Mission Training Plan for Bradley/Stinger Fighting Vehicle Battery, 29 September 1994
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71-2-MTP	Mission Training Plan for The Tank and Mechanized Infantry Battalion Task Force, October 1988
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44-14II-MQS	Military Qualification Standards II, Air Defense Artillery Branch, Company Grade Officer's Manual
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11-9	Blueprint of the Battlefield, May 1992

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CALL Combat Training Center (CTC), CTC Trends, NTC, 4QFY94.

CALL Combat Training Center (CTC), CTC Trends, NTC, 1QFY95.

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Other References

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Appendix A

INDEX of
BRIGADE COMBAT TEAM BATTLEFIELD FUNCTIONS
Grouped By Battlefield Operating System (BOS)

This component lists the thirty-nine (39) battlefield functions (BFs) for each battlefield operating system (BOS) which have been identified as relevant to U.S. Army tactical echelon units. These BFs were identified based on an analysis of Training and Doctrine Command (TRADOC) Pamphlet 11-9, "Blueprint of the Battlefield." The purpose of this component is to depict the BOS and the BF which define each BOS.

INTELLIGENCE	(1)	Conduct intelligence planning.
	(2)	Collect information.
	(3)	Process information.
	(4)	Disseminate intelligence.
MANEUVER	(5)	Conduct tactical movement.
	(6)	Engage enemy with direct fire and maneuver.
AIR DEFENSE	(16)	Take active air defense measures.
	(17)	Take passive air defense measures.
FIRE SUPPORT	(7)	Employ mortars.
	(8)	Employ field artillery.
	(9)	Employ close air support.
	(10)	Conduct electronic collection and electronic attack.
	(11)	Conduct battlefield psychological operations.
	(12)	~~Employ chemical weapons~~.[1]
	(13)	Conduct counter target acquisition operations.
	(14)	Employ naval surface fires.
	(15)	Coordinate, synchronize and integrate fire support.
MOBILITY AND SURVIVABILITY	(21)	Overcome obstacles.
	(22)	Enhance movement.
	(23)	Provide countermobility.
	(24)	Enhance physical protection.
	(25)	Provide operations security.
	(26)	Conduct deception operations.
	(27)	Provide NBC defense.

[1] Although U.S. national policy has renounced the use of chemical weapons, this BF is retained because it is a function which might be performed by other nations.

COMMAND AND CONTROL	(18)	Plan for combat operations.
	(19)	Direct and lead unit during preparation for the battle.
	(20)	Direct and lead units in execution of battle.
COMBAT SERVICE SUPPORT	(28)	Provide transport services.
	(29)	Conduct supply operations.
	(30)	Provide personnel services.
	(31)	Maintain weapons systems and equipment.
	(32)	Provide health services.
	(33)	Treat and evacuate battlefield casualties.
	(34)	Conduct enemy prisoners of war (EPW) operations.
	(35)	Conduct law and order operations.
	(36)	Conduct civil affairs operations.
	(37)	Provide sustainment engineering.
	(38)	Evacuate non-combatants from area of operations.
	(39)	Provide field services.

Appendix B

STRUCTURE OF BATTLEFIELD FUNCTIONS (BFs) RELEVANT TO BRIGADE OPERATIONS

This component provides a description of each BF and the battlefield operating system (BOS) with which it is aligned. Included with each BF definition is a listing of major doctrinal topics and aspects addressed by the BF. These definitions provide the necessary framework required to understand the focus of each BF. Under most circumstances, heavy brigades will be involved in the accomplishment of some or all aspects of the BF. The involvement can vary from extensive, wherein the BF is a major focus, to minor, wherein the brigade headquarters only furnishes information. In the latter instances, the involvement may not be sufficient to warrant incorporation into a brigade's training program, although the brigade's responsibilities for the function are likely addressed in its SOP for tactical operations (TACSOP). BF definitions were extrapolated from TRADOC Pam 350-7 "Blueprint of the Battlefield," as well as other doctrinal publications relevant to the applicable BF or BOS.

1. **Intelligence BOS** - The ways and means of acquiring, analyzing, and using knowledge of the enemy, weather, and terrain required by a commander in planning, preparing, and conducting combat operations. These BFs are continuous throughout the planning, preparation, and execution phases of the battle.

    a. **BF (1) Conduct Intelligence Planning** - The developing and coordinating of information relative to the enemy, weather, and terrain prior to and during the development of the unit OPORD; the planning to collect information from battlefield sources and to acquire intelligence from other headquarters. Focus of this BF is the intelligence preparation of the battlefield (IPB). This BF addresses:

        1) Reconnaissance and surveillance plan (R&S Plan).

        2) Integrated threat templates (e.g., doctrinal, event, input to DST).

        3) Terrain and weather analysis.

    b. **BF (2) Collect Information** - Obtaining information in any manner from the heavy brigade's elements and from sources outside the heavy brigade (e.g., higher headquarters and adjacent units). This BF includes the tasks associated with managing the processes and activities necessary to collect battlefield information which may eventually be used to provide intelligence relative to the enemy, terrain, and weather. This BF addresses:

        1) Information collected as a result of the R & S Plan.

        2) Continuous information collection and acquisition from all sources.

c. **BF (3) Process Information** - Converting information into intelligence through collation, evaluation, analysis, integration, and interpretation in a continual process. This BF addresses:

1) Evaluation of threat information.

2) Evaluation of physical environment information.

3) Integration of intelligence information.

4) Development of enemy intentions.

5) Development of targeting information.

6) Preparation of intelligence reports.

7) Update of situational template.

8) Provision of battlefield area reports.

d. **BF (4) Disseminate Intelligence** - Transmitting of information by any means (verbal, written, electronic, etc.), from one person or place to another to provide timely dissemination of critical intelligence to all appropriate members of the combined arms team. This BF addresses:

1) The sending of processed intelligence in a timely manner to those on the combined arms team who can, by its receipt, take appropriate actions to accomplish the mission. This includes intelligence on the enemy, terrain, and weather.

2) The sending of raw intelligence directly from those responsible for reconnaissance and surveillance to the commander should that raw intelligence be time sensitive (and not be subject to receipt and processing by intelligence analysts).

3) Dissemination of battlefield reports.

2. **Maneuver BOS** - The employment of direct fire weapons, platforms, and systems through movement and fire and maneuver to achieve a position of advantage in respect to enemy ground forces, in order to accomplish the mission. The direct fire weapons are tank guns, BFV 25mm, anti-tank guns and rockets, attack helicopter guns and rockets, small arms, crew-served weapons, and directed energy weapons systems.

a. **BF (5) Conduct Tactical Movement** - Planning for and directing the positioning of direct fire weapons systems relative to the enemy to secure or retain positional advantage, making full use of terrain and formations. Tactical movement occurs when contact with the enemy is likely or imminent but direct fire engagement has not yet occurred. Units supporting maneuver units are included. This BF addresses:

1) Subordinate element OPORD preparation and dissemination.

2) Preparation for movement.

3) Movement, both mounted and dismounted, and on and off road.

4) Closure of movement to tactical assembly area or tactical positions.

5) Navigation.

6) Air movement.

b. **BF (6) Engage Enemy with Direct Fire and Maneuver** - Planning for and directing elements in ground combat with the enemy using direct fire and/or close combat in order to destroy the enemy or cause him to withdraw. This BF relates only to those direct fire weapons systems associated with the maneuver BOS. This BF addresses:

1) Preparation of engagement areas.

2) Rehearsals of battle plans.

3) Prevention of fratricide.

4) Conduct of close combat.

5) Integration of direct fire with maneuver.

6) Control of terrain.

7) Consolidation and reorganization.

3. **Fire Support BOS** - The collective, coordinated, and synchronized use of target acquisition data, indirect fire weapons, armed aircraft (less attack helicopters) and other lethal and non-lethal means against ground targets in support of maneuver force operations and to achieve the commander's intent and scheme of maneuver. The fire support BOS addresses these weapons: mortars, field artillery, close air support, electronic measures, and naval surface fires.

a. **BF (7) Employ Mortars** - Planning for and employment of mortars by the maneuver unit to place fires on the enemy or terrain to support the commander's concept and intent.

b. **BF (8) Employ Field Artillery** - Planning for and directing of indirect artillery fires to be placed on the enemy or terrain to support the commander's concept and intent. The fire support coordination tasks necessary to integrate the field artillery and the maneuver units are the primary focus. This BF does not address those field artillery tasks associated

directly with those actions taken by the batteries of the artillery battalion in the conduct of their support mission such as FDC operations, gun operations, etc. This BF addresses:

1) Fire support - maneuver unit rehearsals.

2) FSE operations during the preparation and execution phases of the battle.

3) Positioning and movement within the maneuver unit sector or zone.

4) Indirect fire missions in support of maneuver commander's concept and intent.

c. **BF (9) Employ Close Air Support** - Planning for, requesting, and employing armed aircraft (less attack helicopters) in coordination with other fire support (lethal and non-lethal) against ground targets in support of the brigade commander's concept and intent. This BF addresses:

1) Air-ground attack requests.

2) Air space coordination and management.

3) Air liaison officer, forward air controller; other Army fire support coordination officers, U.S. Navy/U.S. Marine Corps (USN/USMC) brigade team commander, Strategic Arms Limitation Talks (SALT) and firepower control team (FCT) tasks that enable air-to-ground attacks.

d. **BF (10) Conduct Electronic Collection and Jamming**[1] - Planning for and directing actions taken to deny the enemy effective command, control, and communications of his own tactical force in support of maneuver commander's concept and intent. This BF includes jamming, deception, and collection.

e. **BF (11) Conduct Battlefield Psychological Operations** - Planning for and directing the conduct or support of psychological operations (when psychological operations units are available) as an integral part of combat operations to bring psychological pressure to bear on enemy forces and civilians under enemy control in the battle area, to assist in the achievement of tactical objectives in support of the brigade commander's concept and intent.

~~f. **BF (12) Employ Chemical Weapons**~~[2] - Employing chemical agents or other means to degrade enemy capabilities in support of the brigade commander's concept and intent.

[1] Title and structure change to "Conduct electronic collection and electronic attack" are presently under consideration.

[2] Although U.S. national policy has renounced the use of chemical weapons, this BF is retained because it is a function which might be performed by other nations.

g. **BF (13) Conduct Counter Target Acquisition Operations** - Planning for and directing the suppression (e.g., using smoke or dazzling illumination) to degrade enemy direct observation, optics, radar, sensors, electronic DF equipment, and imaging systems in support of the commander's concept and intent.

h. **BF (14) Employ Naval Surface Fires** - Planning for and directing naval gunfire in support of the maneuver commander's concept and intent.

i. **BF (15) Coordinate, Synchronize, and Integrate Fire Support** - Coordinating all fire support means in support of the maneuver commanders' concepts and intents. The BF integrates BF 7-14.

4. **Air Defense BOS** - The means and measures organic or assigned to the maneuver commander which, when employed successfully, will nullify or reduce the effectiveness of attack by hostile aircraft or missiles after they are airborne.

a. **BF (16) Take Active Air Defense Measures** - Planning for and directing the application of firepower to destroy enemy air targets. This BF encompasses the coordinating tasks which enable the commander to successfully employ any attached or assigned air defense weapons system, as well as the tasks necessary to employ all organic weapons systems against enemy air targets. This BF addresses:

1) Employment of air defense artillery guns and missiles.

2) Employment of maneuver unit weapons systems such as small arms, automatic weapons, Bradley fighting vehicle (BFV) 25 mm and tube-launched optically tracked, wire-guided missiles (TOW), and tank main gun against enemy air.

3) Airspace management.

4) Early warning.

b. **BF (17) Take Passive Air Defense Measures** - Planning for and directing the protection of the unit from enemy air by means other than weapons. This BF addresses:

1) Early warning.

2) Dispersion.

3) Deception.

5. **Command and Control BOS** - The ways and means a commander exercises authority and direction over organic and assigned combat power in the accomplishment of the mission.

a. **BF (18) Plan for Combat Operations** - The integration of all members of the unit in the coordinated development of an operations order which will guide the activities of the unit in conducting combat operations to accomplish assigned missions. The product/outcome of this BF is a briefed, understood OPORD. This BF addresses:

1) Receipt and analysis of higher HQ OPORD.

2) Issuance of warning order.

3) Restated mission statement.

4) Commander's estimate process/troop leading procedures.

5) Commander's guidance.

6) Mission analysis (includes course of action development).

7) Decision brief to commander.

8) Development of a synchronized OPORD.

9) Reproduction and distribution of OPORD to all participants.

10) Briefing of OPORD; understanding of order by participants.

11) FRAGO planning and issue.

b. **BF (19) Direct and Lead Unit during Preparation for the Battle** - The ways and means to prepare the unit so that it is ready to support the commander's concept and intent. This BF addresses:

1) Commander's actions and decisions.

2) Directing preparation for the battle.

3) Issuing orders.

4) Communicating information.

5) Confirmation briefs and backbriefs.

6) Rehearsals.

7) Maintaining and updating information and force status.

8) Decisions to act or change ongoing actions.

9) Confirming IPB through the reconnaissance effort.

10) Determining actions to implement decisions.

11) Synchronizing preparation (e.g., management of time).

12) TOC operations (e.g., staff integration).

13) Second in command (2IC) responsibilities.

14) Continuous and sustained operations.

15) Communications (e.g., planning, installation and operation of system, management, site election).

c. **BF (20) Direct and Lead Units in Execution of Battle** - The ways and means to command and control the unit's execution of the battle plan to accomplish the commander's concept and intent. This BF addresses:

1) Commander's actions and decisions.

2) Directing the conduct of the battle.

3) Issuing orders.

4) Information distribution.

5) Synchronizing tactical operations (e.g., use of DST).

6) TOC operations (includes CP displacement, security, survivability, battle tracking).

7) Continuity of command (e.g., C2 redundancy).

8) Second in command (2IC) responsibilities.

9) Continuous and sustained operations.

10) Consolidation and reorganization.

6. **Mobility and Survivability BOS** - The ways and means that permit freedom of movement, relative to the enemy, while retaining the force's ability to fulfill its primary mission, as well as the measures the force takes to remain viable and functional by protection from the effects of enemy weapons systems and natural occurrences.

a. **BF (21) Overcome Obstacles** - Planning for and directing actions to remove or clear/reduce natural and man-made obstacles.

b. **BF (22) Enhance movement** - Planning for and coordinating elements providing mobility for the unit in its area of operations. This BF addresses:

1) Construction and repair of combat roads and trails.*

2) Facilitating movement on routes. (This includes control of road traffic and control of refugees and stragglers.)*

3) Tracking status of routes.*

4) Host nation support.*

c. **BF (23) Provide Countermobility** - Planning for and directing actions to delay, channel, or stop enemy offensive movement consistent with the commander's concept and intent by enhancing the effectiveness of friendly direct and indirect weapons systems.

d. **BF (24) Enhance Physical Protection** - Planning for and directing actions that provide protection of friendly forces on the battlefield by enhancing the physical protection of personnel, equipment and weapons systems, and supplies.

e. **BF (25) Provide Operations Security** - Planning for and directing action to deny information to the enemy about friendly capabilities and intentions by identifying, controlling, and protecting indicators associated with planning and conducting military operations. This BF addresses:

1) Analysis to determine key assets and threats to them.

2) Monitoring of implementation of OPSEC measures.

3) Physical security measures.

4) Signal security.

5) Electronic security.

* Normally accomplished by units supporting the division.

f. **BF (26) Conduct Deception Operations** - Taking actions in accordance with the division's or corps' deception plan to mask the objectives of tactical operations in order to delay effective enemy reaction. This BF addresses:

1) Physical deception.

2) Electronic deception.

g. **BF (27) Provide NBC Defense** - The avoidance of contamination; the protection of people, objects or areas from chemical or biological agents by absorbing, destroying, neutralizing, or otherwise rendering harmless or removing such agents; and the removal of radioactive material. This BF addresses:

1) Decontamination of individual soldiers and equipment.

2) Decontamination of weapon systems and supplies.

3) Hasty and deliberate decontamination.

4) Avoidance of contaminated areas.

5) NBC reconnaissance.

6) NBC defensive measures.

7) NBC warning.

7. **Combat Service Support BOS** - The support, assistance, and service provided to sustain forces, primarily in the area of logistics, personnel services, and health services.

a. **BF (28) Provide Transport Services** - Planning for and directing provision or coordination for transportation which will assure sustainment support operations in support of the unit. This BF addresses:

1) Movement of cargo, equipment, and personnel by surface or air.

2) Loading, transloading, and unloading material and supplies.

3) Reporting status.

b. **BF (29) Conduct Supply Operations** - Planning for and directing provision of the items necessary to equip, maintain, and operate the force during the preparation and execution phases of the battle. This BF addresses:

1) Requesting, receiving, procuring, storing, protecting, relocating, and issuing supplies to the specific elements of the force.

2) Providing munitions to weapons systems.

3) Providing fuel and petroleum products to equipment and weapons systems.

4) Reporting status.

c. **BF (30) Provide Personnel Services** - Planning for and directing all personnel-related matters to sustain the force. This BF addresses:

1) Personnel administrative services.

a) Replacement, casualty reporting.

b) Awards and decorations.

c) Postal operations.

d) Promotions, reductions.

2) Financial services.

3) Unit ministry team operations.

4) Legal services.

5) Public affairs services.

6) Preservation of the force through safety.

7) Management of stress.

8) Reporting status.

d. **BF (31) Maintain Weapons Systems and Equipment** - Planning for and directing preservation and repair of weapons systems and equipment. This BF includes the provision of repair parts and end items to all members of the unit before, during and after the battle. Included also is doctrinal echeloning of maintenance (organization, DS, GS). This BF addresses:

1) Recovery.

2) Diagnosis, substitution, exchange, repair and return of equipment and weapons systems to the combined arms force.

3) Reporting status.

e. **BF (32) Provide Health Services** - Planning for, directing and coordinating health services regardless of location, to promote, improve, conserve or restore the mental or physical well-being of individuals or groups. This BF addresses:

1) Preventive medicine.

2) Field sanitation.

3) Mental health.

f. **BF (33) Treat and Evacuate Battlefield Casualties** - Planning for and directing the application of medical procedures on battlefield casualties beginning with "buddy aid" through treatment by trained medical personnel. The BF includes movement of casualties from the forward edge of the battlefield back to division-level medical facilities. This BF addresses:

1) Triage of battlefield casualties.

2) Treatment and movement of casualties to rear (MEDEVAC).

3) Evacuation.

4) Handling and processing the remains of soldiers who have died of wounds.

5) Reporting status.

g. **BF (34) Conduct Enemy Prisoners of War (EPW) Operations** - Planning for and directing the collection, processing, evacuation, and safeguarding of enemy prisoners of war. This BF addresses:

1) Collecting and evacuating EPW.

2) Searching, segregating, safeguarding, silencing, and rapid rearward movement of EPW.

h. **BF (35) Conduct Law and Order Operations** - Enforcing laws and regulations and maintaining of unit and personnel discipline.

i. **BF (36) Conduct Civil Affairs Operations** - Planning for, directing, and/or coordinating assigned tasks to conduct activities which encompass the relationship between the military forces and civil authorities and the citizens in a friendly or occupied country or area when U.S. military forces are present.

j. **BF (37) Provide Sustainment Engineering** - Planning for and coordinating the actions of elements (when in the unit area), providing repair and construction of facilities and lines of communication. This BF addresses:

1) Rear area restoration.*

2) Construction and maintenance of lines of communication (roads, railroads, ports, airfields).*

3) Construction support:

a) Marshaling, distribution and storage facilities.*

b) Pipelines.*

c) Fixed facilities.*

d) Well drilling.*

e) Dismantlement of fortifications.*

k. **BF (38) Evacuate Non-combatants from Area of Operations** - Planning for and directing the unit's participation in actions to use available military and host-nation resources for the evacuation of US forces, dependents, US government civilian employees, and private citizens (US and other). This BF addresses:

1) Medical support.

2) Transportation.

3) Security.

4) Preparation of temporary shelters.

5) Operation of clothing exchange facilities.

6) Operation of bathing facilities.

7) Graves registration.

* Normally accomplished by units supporting the division.

8) Laundry.

9) Feeding.

l. **BF (39) Provide Field Services** - Planning for and coordinating the provision of service logistics functions by CSS elements*. This BF addresses:

1) Clothing exchange.

2) Shower facilities.

3) Graves registration.

4) Laundry and clothes renovation.

5) Bakeries.

6) Feeding (rations supply, kitchens).

7) Salvage.

* Normally accomplished by units supporting the division.

Appendix C

BFs LISTED BY ECHELON

This component depicts the identification of BFs to the echelon/type unit based on previous research and analysis.

INTELLIGENCE BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(1)	Conduct Intelligence Planning	X	X	X	X	X	
(2)	Collect Information	X	X	X	X	X	X
(3)	Process Information	X	X	X	X	X	X
(4)	Disseminate Information	X	X	X	X	X	X

MANEUVER BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(5)	Conduct Tactical Movement	X	X	X	X	X	X
(6)	Engage the Enemy with Direct Fire and Maneuver	X	X[1]				

FIRE SUPPORT BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(7)	Employ Mortars	X	X				
(8)	Employ Field Artillery	X	X	X	X	X	X
(9)	Employ Close Air Support	X	X				

[1] BF 6, as defined, concerns how units will engage the enemy through maneuver and direct fires. The function is performed by the element directly controlling the direct fire systems. Initial analysis indicates that this is accomplished by maneuver battalions, such as a mechanized infantry or armor Bn TF, and attack helicopter battalions. The brigade commander and brigade staff's involvement in the engagement of the enemy is through direction of the subordinate battalions. Hence, the brigade's control is not direct to the systems involved. Therefore, the brigade involvement is described within the context of BF 18, 19, and 20. Further analysis is required.

FIRE SUPPORT BOS (cont.)	Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(10) Conduct Electronic Collection and Jamming[2]						
(11) Conduct Battlefield Psychological Operations						
~~(12) Employ Chemical Weapons~~ [3]						
(13) Conduct Counter Target Acquisition Operations			X			
(14) Employ Naval Surface Fires	X	X				
(15) Coordinate, Synchronize, and Integrate Fire Support	X	X	X	X	X	

AIR DEFENSE BOS	Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(16) Take Active Air Defense Measures	X	X				X
(17) Take Passive Air Defense Measures	X	X	X	X	X	X

COMMAND AND CONTROL BOS	Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry[4]
(18) Plan for Combat Operations	X	X	X	X	X	
(19) Direct and Lead Units During Preparation for Battle	X	X	X	X	X	
(20) Direct and Lead Units in Execution of Battle	X	X	X	X	X	

[2] Title and focus change to "Conduct electronic collection and electronic attack" are presently under consideration.
[3] Although U.S. national policy has renounced the use of chemical weapons, this BF is retained because it is a function which could be performed by other nations.
[4] The battle phases of plan, prepare, and execute are inherent to the ADA battery's performance of BF 16, Take Active Air Defense Measures.

MOBILITY AND SURVIVABILITY BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(21)	Overcome Obstacles	X	X		X		
(22)	Enhance Movement				X		
(23)	Provide Countermobility	X	X		X		
(24)	Enhance Physical Protection	X	X	X	X	X	X
(25)	Provide Operations Security	X	X	X	X	X	X
(26)	Conduct Deception Operations						
(27)	Provide NBC Defense	X	X	X	X	X	X

COMBAT SERVICE SUPPORT BOS		Bn TF	Bde	FA Bn	Eng Bn	FS Bn	ADA Btry
(28)	Provide Transport Services	X	X	X	X	X	
(29)	Conduct Supply Operations	X	X	X	X	X	X
(30)	Provide Personnel Services	X	X	X	X	X	
(31)	Maintain Weapons Systems and Equipment	X	X	X	X	X	X
(32)	Provide Health Services		X			X	
(33)	Treat and Evacuate Battlefield Casualties	X	X	X	X	X	X
(34)	Conduct Enemy Prisoner of War Operations		X			X	
(35)	Conduct Law and Order Operations						
(36)	Conduct Civil Affairs Operations						
(37)	Provide Sustainment Engineering						
(38)	Evacuate Non-combatants from Area of Operations						
(39)	Provide Field Services					X	

Appendix D

USER'S GUIDE

This component is designed to facilitate use of the function analysis. The examples are based on the function analysis (FA) of BF 18--Plan for Combat Operations--as performed by the heavy brigade.

Section 1 - Background on Functional Approach to Training and Battlefield Functions

Given the task-based nature of Army training, the tools for identifying, structuring, and organizing tasks critical for combat effectiveness are essential to realizing goals of Army training for the 21st century. Providing such tools has been a persistent effort in structuring assessment and planning of collective training. Army Training and Evaluation Program Mission Training Plans (ARTEP-MTPs), which list tasks by mission, represent one approach to provide that structure. A complementary approach has emerged in the use of functional areas.

Several initiatives have considered tasks in relation to functional areas rather than missions. One such approach was adopted at the Combat Training Centers (CTCs). The specific approach developed in the mid-1970s used Battlefield Operating Systems (BOSs) as the framework for after action reviews (AARs) and take home packages. The BOSs are seven functional areas which encompass tactical operations.

In addition, to enhance the utility of the BOS structure, the U.S. Army Training and Doctrine Command (TRADOC) developed the Blueprint of the Battlefield. That work used the BOS structure as a framework to describe the tactical level of war in terms of operating systems, functions, and generic tasks. While the functional hierarchy in the Blueprint of the Battlefield provided finer granularity than the BOS, the Blueprint of the Battlefield did not represent battlefield processes, critical sequences of events, procedural steps, and many of the tasks that must be accomplished.

This research product is part of an effort to improve further the functional structure for planning and assessing collective training through the identification and analysis of Battlefield Functions (BFs). Like the Blueprint of the Battlefield, the BFs orient on functions (activities and processes that occur over time) while retaining granularity that supports task-based training. The BF analyses extend the Blueprint of the Battlefield in two ways:

- Identify relationships among BOSs, tasks, echelons, and people required to achieve identified outcomes, thus improving representation of battlefield processes and sequences of events.
- Provide explicit ties to tasks derived from ARTEP-MTPs and doctrine, tactics, techniques, and procedures described in doctrinal manuals, applied at CTCs, or identified by experienced field commanders, thus improving representation of procedural steps and tasks that must be accomplished.

FAs of BFs have been conducted at a level of detail that supports a functional approach to training. The functional approach uses battlefield functions performed by units as the basis for assessing proficiency and planning training. The BF FAs provide content and a framework to apply the functional approach to training. Thirty-nine (39) BFs (Appendix A) are relevant to tactical operations

at echelons from battalion through corps. Association of specific BFs to particular type units indicates that those BFs are germane to the unit's training program.

Section 2 - Overview of Components to a BF Function Analysis

The BF FA conducted as part of this project (Innovative Tools and Techniques for Brigade and Below Staff Training (ITTBBST)) contains seventeen (17) components including this User's Guide. The components allow BF FA users the capability to use the BF FA for a variety of purposes, some of which are described in Section 3 below. The title and a brief description of each BF FA component follow.

Overview: Information is provided concerning the presentation of the BF FA components, the table of organization and equipment (TO&E) of the type unit for which the BF FA is relevant, and the context in which the FA was developed. The information provides an overview of the analytical approach used for the FA.

Purpose and Outcomes: The overall end result which the BF is supposed to accomplish, termed the purpose, is identified. This component also identifies the endstates or bottom line results necessary to achieve the purpose, termed outcomes.

Flow Charts by Battle Phase (Plan, Prepare, Execute): This graphical description portrays the sequence of BF tasks within the framework of tactical battle phases (i.e., planning, preparation, execution). This component describes the flow of tasks during each battle phase, the vertical task linkages (to higher and lower echelon units), and horizontal linkages to other BFs for the echelon being analyzed. It also depicts information flow which affects the tasks.

Task Linkages to Other BFs/Units: Tasks performed in other BFs or by other units are described as they relate (i.e., are linked) to the tasks of the BF being analyzed. These descriptions provide verbal details of the relationships portrayed graphically by the Flow Charts. The purpose of this component is to allow the user to incorporate related tasks and participants into a training exercise for this BF. Tasks which link to this analysis have been extracted for BFs or units for which FAs have been accomplished and extrapolated for FAs which have not yet been developed.

Key Participants by Task: The participants required to perform the tasks are identified. Identification is based on the appropriate echelon/type unit TO&E. It includes special staff members who are critical for task accomplishment.

Key Inputs and Outputs: The critical information required and generated by participants to successfully accomplish the BF is identified. Where information results from the performance of the BF tasks, BF information output is identified. One BF's information output normally is provided as another BF's input. Critical input and output are organized by the specific part of the doctrinal product or means used to communicate it. The source of critical information is specific only to the BF echelon and function being analyzed, and is not intended to reflect all the information the product may contain. The linkages of inputs and outputs to specific tasks are depicted in the Flow Charts component.

Task List Summary: The tasks which are described in detail in the Task List are summarized and numbered. The numbers allow cross referencing among BF FA components.

Task Lists: Tasks and supporting tasks necessary to perform the function are listed by battle phase. Normally, the task identifies the primary participants responsible for performing the tasks. The tasks have been extracted from the appropriate ARTEP-MTPs, echelon and functional area field manuals (FMs), and proponent school special texts. The specific sources of references for each task and subtask are shown in brackets [ ] following the task. Tasks derived from ARTEP-MTPs are referenced with the ARTEP-MTP number and task number, such as [ARTEP 5-145-MTP, Task 05-1-0002/1]. Tasks derived from FMs are referenced with the FM number and page number, such as [FM 5-71-3, p. 2-11]. Tasks identified during interviews with TRADOC school proponent subject matter experts (SMEs), CTC Operations Groups, and Army Forces Command units are referenced as field notes (FN) and the source is reflected, such as [FN-NTC CSS OCs]. Tasks derived from the Center for Army Lessons Learned (CALL) are referenced with the notation LL for lessons learned; the CALL publication number and page number are included, such as [LL-CALL Newsletter 95-6, p. 16]. In some cases, the analysis of the BF resulted in identification of tasks for which no doctrinal references could be identified. Such tasks were selected based on author experience and relevant doctrine. These tasks are referenced as author notes [AN]. The references facilitate review of original source material for further detail and context.

Tasks Organized by Outcomes: Tasks and supporting tasks necessary to perform the function are listed by outcome. The component supports analysis of performance related to outcomes to identify tasks for sustainment or remediation training.

Lessons Learned Integrated into the Task List: The lessons learned extracted from the CALL publications relevant to performing this BF are identified. They are organized and listed by the appropriate task from the Task List component. The purpose of this component is to provide the user with recent tactics, techniques, and procedures (TTP) associated with the performance of the tasks in this BF.

Gate Tasks: Critical individual or collective tasks which BF participants must be able to perform prior to engaging in the identified BF tasks are listed so that the training can be conducted efficiently and safely.

References: The references and sources used by the analyst are identified.

Index of Battlefield Functions: The thirty-nine (39) BFs relevant to Army tactical echelon units, organized by the BOS they compose, as derived from TRADOC Pamphlet 11-9, Blueprint of the Battlefield, are identified.

Structure of Battlefield Functions: Definitions for the 39 BFs and BOSs they compose are provided.

BFs Listed by Echelon: The occurrences of BFs relevant to training according to echelon/type units are listed. This list is subject to change as research into the relevance of functions continues.

Acronyms and Abbreviations: The acronyms and abbreviations used in the analysis are listed. The acronyms and abbreviations were taken from relevant doctrinal references.

User's Guide: Descriptions are provided of the background of BFs and the Functional Approach to training (Section 1), the components of a BF FA (in this section), and approaches to exploit the flexibility of the BF FA to support multiple Army uses and users (Section 3).

Section 3 - Use of the BF Function Analysis

The analysis of a function contained in each BF FA can support a variety of purposes. General purposes and information needs will be suggested for force developers, materiel developers, doctrine developers, training developers, and unit commanders.

- Force Developers: Develop personnel systems and organizational structures to support the force. Purpose and Outcomes and Task Lists components, for example, could support identification of required capabilities and tasks that a particular unit or organization must be able to perform. The Flow Charts component could support delineation of a new organizational design.

- Materiel Developers: Develop requirements for new systems to ease performance activities of soldiers and to accomplish new battlefield requirements. Through the identification of requirements, new technologies and processes can be applied to support force needs. The Flow Charts component, for example, could be used to illustrate opportunities to revise procedures to take advantage of enhancements in areas such as information dissemination.

- Doctrine Developers: Develop new and modify existing doctrine to integrate emerging technologies and to implement changing Army missions and priorities. TTP will evolve to meet new battlefield conditions and requirements as well as to guide combined arms, joint service, and multinational operations. The emphasis in BF FAs on interrelationships can identify gaps in task coverage which should be addressed through revisions to publications such as ARTEP-MTPs.

- Training Developers: Develop new and modify existing training programs to support new doctrine, emerging technologies, changes in organization, and reduced resources and training environments. Potential uses of a BF FA to support areas such as development of training support packages (TSP) and development of training aids, devices, simulators, and simulations (TADSS) are discussed in Section 4.

- Unit Commanders: Assess training effectiveness, develop training plans, and execute training. BF FA support for training assessment and planning training events is discussed in Section 4.

Developers and commanders often begin by performing or examining one or more front end analyses (FEAs) to gain an understanding of a relevant issue. Whether they perform FEAs themselves or draw from available analyses (like the BF FAs), information is sought on many topics. Likely topics include the following (with relevant BF FA components):

- What are the objectives/missions of the system? (Purpose and Outcomes)

- What are the vertical and horizontal linkages between elements, and what are the information inputs and outputs associated with these? (Flow Charts, Tasks Linked to Other BFs/Units, and Key Inputs and Outputs)
- What are the processes and tasks being performed within each element? (Task Lists, Tasks Organized by Outcomes, and Flow Charts)
- Who are the players and/or target audience? (Key Participants by Task)
- What enabling and objective knowledge and skills are required? (Gate Tasks)
- Are there any experiences and lessons learned that would be helpful? (Task Lists and Lessons Learned Integrated into the Task List)

Two detailed examples of BF FA usage are presented in Section 4 below. These examples demonstrate, first, how unit commanders and, second, how training developers can use BF FAs. The examples should serve as a guide for potential BF FA users in that generic information within the BF FAs is transferable to the other applications.

Section 4 - Unit Commander and Training Developer Use of a BF Task Analysis

Unit Commanders

Unit commanders use published Army doctrine as contained in FM 25-100, Training the Force (November 1988), and FM 25-101, Battle Focused Training (September 1990) to assess training effectiveness and to plan training events. The BF FAs provide relevant information for assessment and planning within the intent of those documents. The added information supports functional training which uses proficiency related to functions as the basis for identifying tasks to be trained and structuring training on those tasks. The BF FAs supplement the training and assessment systems and processes already in use by commanders.

1. Conduct Training Assessment

The commander assesses the mission essential task list (METL) to identify functions that require attention, to select outcomes for training focus, and to provide specific guidance for training. This functional training assessment allows the commander to perform an analysis across several layers with a successively narrow focus:

a. METL tasks.

b. Each BOS for each METL task that requires remediation or sustainment.

c. Relevant BFs for each BOS that requires remediation or sustainment.

d. Relevant outcomes for each BF that requires remediation or sustainment.

The commander assesses BF performance in the context of the unit METL and the BOS by using the Purpose and Outcomes component. To support the assessment, commanders could develop

and complete a worksheet which relates BFs and the outcomes to the METL and BOS, as depicted in Figure D-1, which presents a completed assessment worksheet for BF 18.

BF 18 Outcomes (extracted from the function analysis):

1. Complete, concise, feasible, suitable, acceptable, and tactically sound brigade orders that conform to doctrinal standards are issued.
2. Brigade orders are received in no more than 1/3 of the available time and understood by key participants and subordinates.
3. Sufficient hard copies of the brigade order and all key accompanying documents are provided to key personnel in accordance with TSOP.
4. Brigade operations, command, and control continue during planning process.

Mission Essential Tasks	**CURRENT TRAINING STATUS**					Overall **METL** Status
	BOS: Command and Control					
	BF: 18- Plan for Combat Operations					
	Outcomes	1	2	3	4	
		P	*P*	*T*	*P*	*P*
Defend	*Outcome 1: OPORD generally very good; need more detail on control measures (excessive risk of fratricide).* *Outcome 2: Too slow getting information to supporting battalions–FSB especially needs support requirements earlier.* *Outcome 3: Dissemination is very smooth.* *Outcome 4: Weak communications between main CP and adjacent units.*					
Attack; Movement to Contact		*P*	*U*	*T*	*P*	*P*
	Outcome 1: Accuracy of graphics questionable–MCOO inaccurate or unclear–not sure which, may be both. *Outcome 2: Adjacent units never received initial WARNO.* *Outcome 3: OPORD distributition continued to be a strength.* *Outcome 4: Rear CP: SITMAP and information displays of tactical situation were not current.*					
Overall BF Status: BF 18 = *P*				BOS Status = *P*		

Note: Italics indicate entries made by hypothetical commander.

Figure D-1. Assessment worksheet for heavy brigade performance of BF 18.

2. Plan Training Events

The BF FA supports four steps related to planning a training event. The use of BF FAs to perform each of these tasks is described below.

a. Selecting Tasks and Supporting Tasks To Be Trained

1) Selection of tasks by outcome or battle phase. When the training assessment identifies outcomes to be achieved, trainers can focus their attention on particular tasks that support the outcome. This process can be streamlined by referring to the Tasks Organized by Outcomes component of a BF FA. The tasks relevant to each outcomes for the BF 18 FA are shown in Figure D-2. While many of the tasks are required by more than one outcome, the supporting tasks will usually vary between the outcomes.

If trainers have no basis for identifying an outcome within the BF or if the training is to focus on a single battle phase, they can select tasks from the Task List Summary component. For most BFs, this component is organized by the battle phases--plan, prepare, and execute--supported by the Flow Chart. The exceptions to that organization are BFs 1 through 4, which cover the Intelligence BOS, and BFs 18 through 20, which cover the command and control BOS by battle phase. The Intelligence BFs reflect the continuous nature of the intelligence cycle.

BF 18 Outcomes (OC):

1. Complete, concise, feasible, suitable, acceptable, and tactically sound brigade orders that conform to doctrinal standards are issued.
2. Brigade orders are received in no more than 1/3 of the available time and understood by key participants and subordinates.
3. Sufficient hard copies of the brigade order and all key accompanying documents are provided to key personnel in accordance with TSOP.
4. Brigade operations, command, and control continue during planning process.

Tasks (from the Task List)	OC 1	OC 2	OC 3	OC 4
1. The brigade commander and staff direct and lead the brigade during planning for the battle.				X
2. The brigade receives an order initiating a new mission from higher headquarters.	X	X		
3. The brigade commander and staff conduct mission analysis.	X	X		
4. The brigade executive officer directs the staff in the preparation and issuance of a brigade warning order.	X			
5. The brigade commander issues initial planning guidance.	X	X		
6. The brigade commander and staff prepare estimates.	X			
7. The brigade commander and staff develop course(s) of action.	X			
8. The brigade commander and staff analyze course(s) of action.	X			
9. The brigade staff compares course(s) of action.	X			
10. The brigade commander announces decision.	X			
11. The brigade staff prepares the operations order.	X	X	X	
12. The brigade commander and staff issue the operations order.	X	X	X	

Figure D-2. Overview of tasks by outcomes for BF 18 FA.

2) Selection of supporting tasks. Trainers must also select supporting tasks. Supporting tasks are blocks of performance required by the task. Each task and supporting task is structured to describe actions to be performed (e.g., steps) or the end states of the task (i.e., aspects of the standard). The detailed description for each task and supporting task is contained in the Task List component. An excerpt from that component of the BF 18 FA is shown in Figure D-3.

5. **The brigade commander issues initial planning guidance.** [FM 101-5, Chap 4, p. 4-15]
   a. The brigade commander develops planning guidance: [FM 101-5, p. 4-16; FM 71-3, p. 3-3]
      1) Using the results of his own mission analysis and his METT-T assessment. [FM 101-5, p. 4-16]
      2) Using the results of the brigade staff's mission analysis. [FM 6-20-40, p. 2-1; FM 6-20-50, p. 2-1; FM 6-20-10, p. 1-5; FN-JRTC; FN-194 AR]
   b. The brigade XO prepares the brigade staff to receive the brigade commander's guidance. [FM 101-5, p. 4-15; ARTEP 71-3 MTP, Task 71-3-0001/2]
      1) Determines who must be present at the commander's guidance briefing, if not SOP (e.g., engineer battalion Cdr, FSCOORD, MP platoon leader).
      2) Ensures staff is prepared to take notes on guidance issued (depending on the level of detail and specificity of guidance).
   c. The brigade commander issues planning guidance to the brigade staff, which may include: [FM 101-5, p. 4-17; FM 6-20-40, p. 2-1, 2-3; FM 6-20-50, p. 2-1, 2-3; FM 6-20-10, p. 1-7; ARTEP 71-3 MTP, Task 71-3-0001/3]
      1) Enemy COA. [FM 101-5, p. 4-17]
      2) Restated mission. [FM 101-5, p. 4-18]

Figure D-3. Example of supporting tasks extracted from the Task List of BF 18 FA.

3) Identification of references. As Figure 6 also illustrates, the doctrinal source (publication number and task number or page number), in brackets, is included with the listing of each task and supporting task. Trainers can refer to the References component to determine the doctrinal publication title and publication date. They can then refer to doctrinal source material for further detail and context, if desired. Figure D-4 provides examples taken from the References component of BF 18.

Field Manuals (FMs)

6-20-40	Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Heavy), January 1990
6-20-50	Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Light), January 1990
71-3	The Armored and Mechanized Infantry Brigade - January 1996
101-5	Command and Control for Commanders and Staff (Draft), August 1993

Army Training and Evaluation Program (ARTEPs)

71-3 MTP	Mission Training Plan for the Heavy Brigade Command Group and Staff, April 1988

Figure D-4. Excerpt from References component of BF 18 FA.

4) Identification of techniques and useful training information. As part of the task selection process and the planning of the training event, trainers can refer to the Lessons Learned component. This component identifies lessons learned extracted from the CALL publications. This component also provides information not necessarily contained in the applicable doctrinal references but determined to be relevant to training of the function based on performance history of brigades at the CTCs. In other cases, lessons learned at CTCs may provide a clearer definition of how tasks should be performed and the conditions under which they must be performed. An excerpt from that component of the BF 18 FA is shown in Figure D-5.

5. **The brigade commander issues initial planning guidance.** LL - Determine the amount of planning guidance the staff requires to develop the plan. [CALL Newsletter No. 93-3: The Battalion and Brigade Battle Staff - Jul 93, p. 9] LL - Do not suppress the staff's ability to plan by providing excessive planning guidance. [CALL Newsletter No. 93-3: The Battalion and Brigade Battle Staff - Jul 93, p. 9] LL - Sketch the initial concept of the operation for the staff. [CALL Newsletter No. 93-3: The Battalion and Brigade Battle Staff - Jul 93, p. 9]

Figure D-5. Excerpt from Lessons Learned Integrated into the Task List component of BF 18 FA.

b. Selecting the Training Audience. After determining which tasks must be trained, trainers should next identify the training audience. The Key Participants by Task component of the BF FA supports that analysis. This component, based on the unit's TO&E, specifies the participants required to perform the tasks selected for training. One potential result of this review is that trainers may have to coordinate (through the appropriate commanders) with external units to have a specific special staff member participate in the training event. Figure D-6 depicts an example of that component of the BF 18 FA.

Tasks 5. **The brigade commander issues initial planning guidance.** **Participants** Bde Cdr, Bde XO, Bde CSM, Bde S2, DS MI Co Cdr, Bde S3, Bde S3-Air, Bde S3 Opns Sgt, CMLO, FSCOORD, FSO, Engr Bn Cdr, ABE, ADLO, AVLO, ALO, Bde S1, Bde Chaplain, Bde Surgeon, MP Plt Ldr, Bde S4, BSO, Bde HQ Co Cmdt, Bde S5 (if assigned)

Figure D-6. Excerpt from Key Participants by Task component of BF 18.

c. Identifying Task Training Sequences and Products To Support Training. Unit trainers must also decide which products and information sources must be replicated or emulated to introduce external stimuli to the training events. The Flow Charts and Key Inputs and Outputs components help determine that information.

The flow charts are used to determine: (a) the flow of tasks during each battle phase; (b) vertical task linkages (to higher and lower echelon units); (c) horizontal task linkages (to tasks in other BFs for the echelon being analyzed); and (d) information input and output which affect relevant tasks. The flow charts provide a graphical description of tasks as they are sequenced within the framework of the battle phases. Although the sequencing of tasks throughout each battle phase is intended to reflect the flow of tasks, tasks may be performed concurrently or may interact with preceding or subsequent tasks.

The Inputs section of the Key Inputs and Outputs component contains critical information, organized by the doctrinal product or means used to communicate it, required by participants to achieve the purpose of the BF. The information and products described must be replicated to drive training events. The Lessons Learned Integrated into the Task List component can also support identification of conditions to be replicated.

The Outputs section of the Key Inputs and Outputs component describes information which results from the performance of the BF tasks. The Outputs should be covered by performance standards and should usually be covered during the after action review (AAR). An excerpt from the Key Inputs and Outputs component of the BF 18 FA is shown in Figure D-7.

KEY INPUTS

D - 4 **GUIDANCE AND INFORMATION FROM THE DIVISION COMMANDER AND STAFF.**

a. Division commanders verbal or written guidance.
b. Operational situation reports (OPSITREPs).
c. Periodic personnel report (PPREPT).
d. Periodic intelligence report (PERINTREP).
e. Periodic operation report (PEROPRPT).
f. Periodic logistics report (PERLOGRPT).
g. Periodic civil affairs report (PERCARPT).
h. Engineer reports.
i. Field artillery reports.
j. Air defense artillery reports.
k. Other reports of planning or critical combat information of interest to the brigades.

KEY OUTPUTS

Bde - 3 **BRIGADE WARNING ORDER**

a. Mission, intent, and CCIR of brigade commander.
b. Graphics.
c. Types of fire support munitions available, including CSR and RSR.
d. Enemy situation.
e. Assets available for collection of information and intelligence.
f. Task organization.

Figure D-7. Excerpt from Key Inputs and Outputs component of BF 18 FA.

d. Determining Prerequisite Training Tasks. If units are to obtain full benefit from training, participants must have previously achieved a level of proficiency in the individual and collective tasks required to enable safe and effective training of the selected tasks. Identification of such prerequisite tasks is accomplished by analyzing the Gate Tasks component. Trainers use this information to provide focus for individual training, subordinate echelon collective training, and staff training. An excerpt from the Gate Tasks component for the BF 1 FA contained in this research product is shown in Figure D-8.

5. The brigade commander issues initial planning guidance.

S2

[STP 34-35II-MQS, Intelligence]

- Conduct situation development [01-3381.01-4016].

Officer Common Tasks:

[STP 21-II-MQS, Common Tasks]

- Brief to Inform, Persuade, or Direct [01-9007.01-0250]
- Communicate effectively as a commander or staff officer [03-9001.12-0003]

NCO Common Tasks for: All Primary and Special Staff NCOs

[STP 21-24-SMCT, Common tasks]

- Prepare situation report [SITREP] [071-332-5022].
- Prepare a strip map [551-721-3359].
- Prepare an operation overlay [071-332-5000/ 71-3-3002[2] MTP 71-3].
- Conduct operations security [OPSEC] procedures [113-573-0002].
- Integrate risk management into mission [850-001-4001].

[ARTEP 71-3-MTP]

- Perform duties in a tactical operations center or admin/log command post [7-1-3904/3036].
- Analyze tactical mission statement [ARTEP 71-3 MTP, Task 71-3-3001].
- Prepare plans/orders/annexes IN ACCORDANCE WITH FM's 71-2 and 101-5 [7-1-3904[9] / 71-3-3002].
- Prepare operational journals [ARTEP 71-3 MTP, Task 71-3-2006[2]].
- Advise and assist staff on elements of BOS that support/impact their staff function [ARTEP 71-3 MTP, Task 71-3-0001].
- Maintain the current situation (71-3-3003).

Figure D-8. Excerpt from Gate Tasks component of BF 18 FA.

Training Developers

The TRADOC service schools (proponents) develop training materials to guide individual and collective training. Training development is conducted within the framework of the systems approach to training. The BF FAs support the systems approach for collective training by identifying not only the tasks for each type of unit, but also horizontal and vertical relationships within each BOS, relationships among BOS, and relevant details about the relationships. The descriptions of interrelationships, which describe the scope of required synchronization plus details about tasks and supporting tasks, provide training developers with information about the content of training which they are supporting.

Within TRADOC, current training development supports Force XXI. The BF FAs are especially germane to the WARFIGHTER XXI (collective) emphasis. The information in each BF FA can be applied within each of the five WARFIGHTER XXI components:

- Standard Army Training System (SATS)
- TSPs
- TADSS
- Standard After Action Review System (STAARS)
- Army Training Digital Library (ATDL)

1. Standard Army Training System

The SATS is a computer-based software system that automates training management doctrine. The most direct connection of BF FAs to SATS is through the Combined Arms Training Strategy (CATS). This is the mechanism for establishing long-range and short-range unit training strategies. Each CATS identifies tasks, drills and exercises, TADSS, and resources to support training for each unit type. BF FA components help developers identify tasks to be addressed by the strategy; the FAs are especially useful for identifying staff tasks that are not currently included in ARTEP-MTPs. In addition, BF FAs directly support two elements of the CATS--Training Unit Audience and Prerequisite Training Gates. Training developers can extract information about the audience for training from the Key Participants by Task component. They can find prerequisites for the tasks in the Gate Tasks component. Figure D-9 shows extracts from the CATS for the Armor Battalion Task Force that were based on the BF FAs for the battalion task force.

Training Unit Audience	**Prerequisite Training Gates**
MOVEMENT TO CONTACT	
Full TF, including Slice (includes FSO/FSE, CEWI Assets, Engineer, ADA, TACP, TF Combat/Field Trains (BSA))	**TF Command Posts, Staff and Slice (Attached units, staff elements, and LNOs)** - Assessed at "T" level task proficiency in the performance of BOS functions and supporting tasks: 7-1-3003, 4, 5, 6, 7, 8, 9, 14, 15, 18, 19, 21, 22, 23 24, 27. . .

Figure D-9. Extract from CATS for battalion task force.

2. Training Support Packages (TSPs)

A TSP for collective training integrates training products, materials, and information necessary to train one or more tasks. BF FAs support development of unit preparation materials, tactical materials, and trainer materials. Examples of how the components can contribute to development of TSPs include:

- The Task Lists component or Tasks Organized by Outcomes component can be a useful first draft for a training and evaluation outline. Since both lists may include tasks that are not explicitly described in ARTEP-MTPs, they are especially valuable in designing staff training.
- Training developers can augment the training and evaluation outline by providing tactics, techniques, and procedures drawn from Lessons Learned Integrated into the Task List component.
- Several components work together to specify conditions that must be replicated for realistic training. The Flow Charts and Key Participants by Task components show the type of horizontal and vertical interactions that should be built into the scenario. The Task Lists and Key Inputs and Outputs components describe the scope of those interactions. The inputs and outputs can be especially useful in packaging required information to train particular tasks.
- In addition to setting out the conditions, the Purpose and Outcomes and Key Inputs and Outputs components can be the basis for building "A Way" demonstrations of how the various units, sections, and individuals are synchronized during the operation and what results the event/exercise should produce.
- The Purpose and Outcomes component can be a guide for organizing an AAR. Once an operations center (OC) identifies an outcome to be sustained or improved, the Tasks Organized by Outcomes component can be used to identify particular tasks and supporting tasks to address in the AAR.

3. Training Aids, Devices, Simulators, and Simulations (TADDS)

The BF FAs support TADSS development by defining requirements in terms of tasks which should be performed. In other words, the BF FAs describe the "what" of training so that TADSS developers can develop the "how." The FAs are especially valuable for specifying interactions between echelons and among units. Three components give such information: Flow Charts, Tasks Linked to Other BFs/Units, and Key Participants by Task.

4. Standard After Action Review System (STAARS)

The STAARS will be linked to live, virtual, and constructive exercises and operations with the intent of translating lessons learned into leader development and collective training concepts, methods, and strategies. Since BF FAs structure assessments at successively precise levels (mission, BOS, BF, outcome, and task), they would be well suited to an automated feedback system. The BF FAs can also provide a useful level for aggregating CTC-based lessons learned between the task and BOS levels. In the same way that the Purpose and Outcomes component can facilitate AARs by CTC OCs, the information in that component can structure lessons learned.

5. Army Training Digital Library (ATDL)

The ATDL is a repository of digital information related to training. BF FAs are compatible with ATDL formats and some FAs have been partially formatted into the Automated Systems Approach to Training. ATDL makes it possible to share the information from BF FA components with commanders in the field through the interactive electronic "library without walls" that provides digitized access to training information. In addition, the BF and outcome structure could be useful in organizing task-related information within ATDL.

Appendix E

ACRONYMS AND ABBREVIATIONS

This component identifies the acronyms used by the authors in the function analysis. Acronyms were derived from relevant doctrinal publications.

1SG	first sergeant
A2C2	Army airspace command and control
AAFAD	all arms for air defense
AAR	after action review
ABCS	Army battle command system
AD	air defense
ADA	air defense artillery
ADALO	air defense artillery liaison officer
ADC	area damage control
ADW	air defense warning
ADWCS	air defense weapons control status
AGM	attack-guidance matrix
AI	air interdiction
A/L	administrative/logistics
ALO	air liaison officer
ALOC	administration and logistics operation center
AN	author note
ARI	Army Research Institute

ARTEP	Army Training and Evaluation Program
ASP	ammunition supply point
ASR	available supply rate
ATDL	Army training digital library
ATO	air tasking order
ATP	ammunition transfer point
AVLO	aviation liaison officer
BCC	battlefield circulation control
BDA	battle damage assessment
Bde	brigade
BF	Battlefield function
BFV	Bradley fighting vehicle
Bn	battalion
BOS	battlefield operating system(s)
Btry	battery
C2	command and control
C2W	command and control warfare
C3	command, control, and communications
C3I	command, control, communications, and intelligence
CAFAD	combined arms for air defense
CALL	Center for Army Lessons Learned

CAS	close air support
CBU	cluster bomb unit
CCF	critical combat function(s)
CCIR	commander's critical information requirements
Cdr	commander
CEB	clothing exchange and bath
CHS	combat health support
CI	counterintelligence
CL	class
CL I	subsistence items
CL II	individual equipment, clothing, tool sets, house keeping supplies
CL III	petroleum, oils, lubricants
CL IV	construction and barrier material
CL V	ammunition
CL VI	personal demand items
CL VII	major end items
CL VIII	medical material
CL IX	repair parts and components
CM	countermobility
CM	cruise missile
CMO	civil-military operations
CMTC	Combat Maneuver Training Center
COA	course of action

CP	command post
CS	combat support
CSR	controlled supply rate
CSS	combat service support
CTC	combat training center
DISCOM	division support command
Div	division
DP	decision point
DS	direct support
DSM	decision support matrix
DST	decision support template
EC	electronic combat
EEFI	essential elements of friendly information
EMP	electro-magnetic pulse
Engr	engineer
EO	engagement operations
EPW	enemy prisoner(s) of war
EW	electronic warfare
FA	field artillery
FAADS	forward area air defense system

FARP	forward arming and refuel point
FCT	firepower control team
FDC	Fire Direction Center
FEA	front end analyses
FFIR	friendly forces information requirements
FLOT	forward line of own troops
FM	field manual
FO	forward observer
FORSCOM	U.S. Army Forces Command
FRAGO	fragmentary order
FSB	forward support battalion
FSCM	fire support coordinating measure
FSE	fire support element
FSEM	fire support execution matrix
FSO	fire support officer
GS	general support
HBCT	Heavy Brigade Combat Team
HHB	headquarters and headquarters battery
HHC	headquarters and headquarters company
HIMAD	high- to medium-altitude air defense
HN	host nation

HPTL	high payoff target list
IEW	intelligence and electronic warfare
IFF	identification, friend, or foe
IPB	intelligence preparation of the battlefield
JSEAD	joint suppression of enemy air defense
LLTR	low level transit route
LNO	liaison officer
LP	listening posts
LZ	landing zone
MEDEVAC	medical evacuation
METL	mission essential task list
METT-T	mission, enemy, terrain, troops, and time available
MOPP	mission-oriented protective posture
MSR	main supply route
MTOE	modification table of organization and equipment
MTP	mission training plan
NBC	nuclear, biological, and chemical
NCO	noncommissioned officer

NSF	naval surface fires
OC	operations center
OEG	operational exposure guide
OP	observation post
OPORD	operations order
OPSEC	operations security
OPSITREP	Operational situation report
PCC	pre-combat checks
PCI	precombat inspections
PERCARPT	Periodic civil affairs report
PERINTREP	Periodic intelligence report
PERLOGRPT	Periodic logistics report
PEROPRPT	Periodic operation report
PIR	priority intelligence requirements
PM	provost marshal
PPREPT	Periodic personnel report
PRF	performance rating form
PZ	pickup zone
R&S	reconnaissance and surveillance
ROE	rules of engagement

ROZ	restricted operations zone
RSR	required supply rate
S2	intelligence officer, brigade and battalion staff
S3	operations and training officer, brigade and battalion staff
S4	supply/logistics officer, brigade and battalion staff
SAFAD	small arms for air defense
SALT	strategic arms limitation talks
SALUTE	size, activity, location, unit, time, equipment
SATS	standard Army training system
SCATMINE	scatterable mine
SEAD	suppression of enemy air defenses
SGM	sergeant major]
SHORAD	short-range air defense
SO	signal officer
SOF	special operations forces
SOI	signal operating instructions
SOP	standing operating procedures
SOR	specific orders and requests
SPOTREP	spot report
STAARS	standard after action review system
SVSCON	communications planning and Systems Control
TA	target acquisition, task analysis

TACSOP	tactical operation for standard operating procedures
TADSS	training aids, devices, simulators, and simulations
TAI	targeted area of interest
TBM	tactical ballistic missile
TCF	tactical combat force
TF	task force
TOC	tactical operations center
TOE/TO&E	tables of organization and equipment
TOW	Tube-launched optically tracked, Wire-guided missile
TRADOC	U.S. Army Training and Doctrine Command
TSOP	tactical standing operating procedures
TTP	tactics, techniques, and procedures
UAV	unmanned aerial vehicle
USN	U.S. Navy
USMC	U.S. Marine Corps
WARNO	warning order
WCS	weapons control status
XO	executive officer [FM 71-3]